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U. S. DEPARTMENT OF AGRICULTURE.

OFFICE OF EXPERIMENT STATIONS—BULLETIN NO. 120.

A. C. TRUE, Director.

PROCEEDINGS
OF THE
SEVENTH ANNUAL MEETING *



AMERICAN ASSOCIATION OF FARMERS' INSTITUTE WORKERS,

HELD AT

WASHINGTON, D. C., JUNE 24, 25, AND 26, 1902.

EDITED BY

A. C. TRUE AND D. J. CROSBY,
For the Office of Experiment Stations.

AND

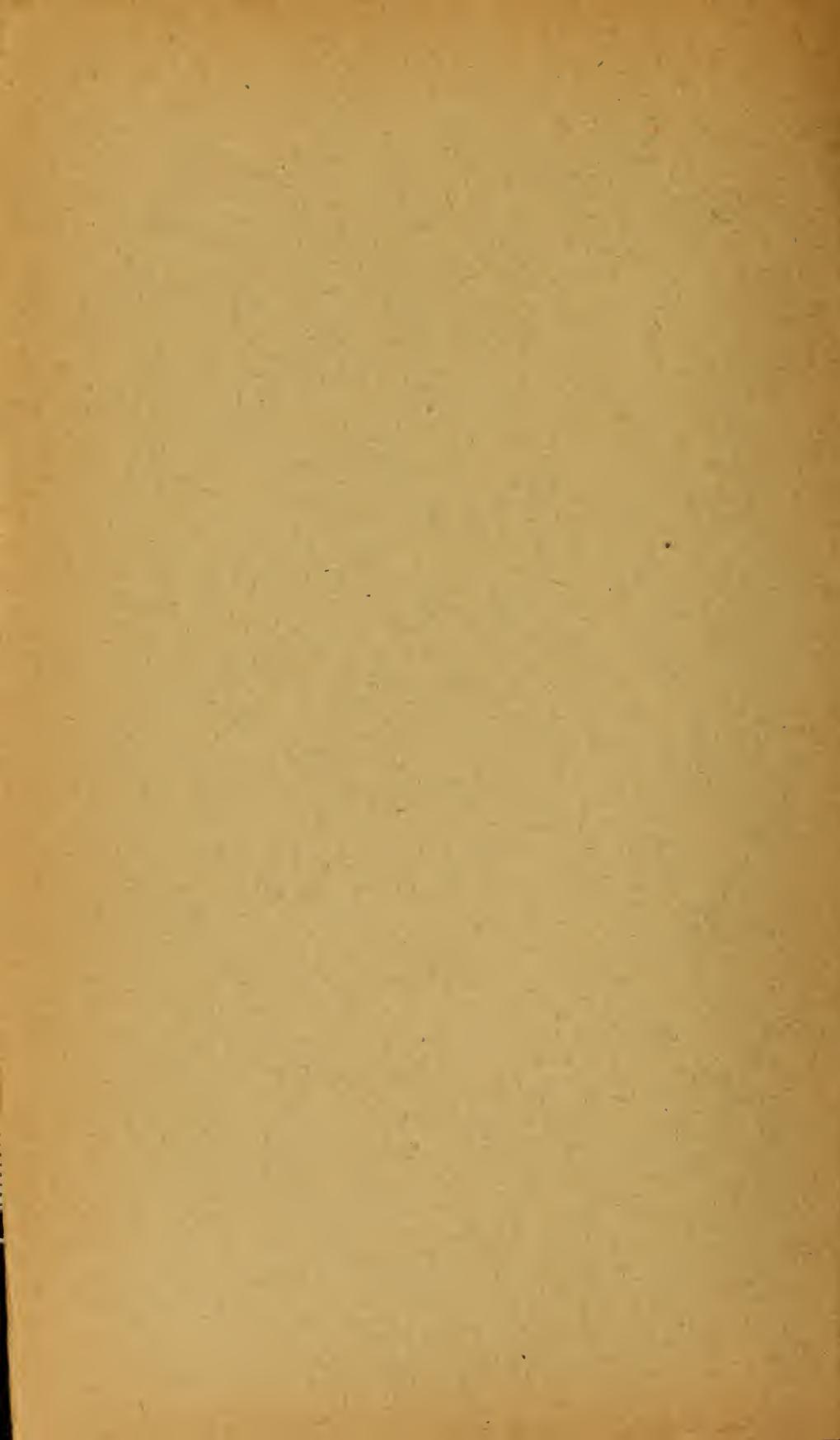
G. C. CREELMAN,
For the Association.

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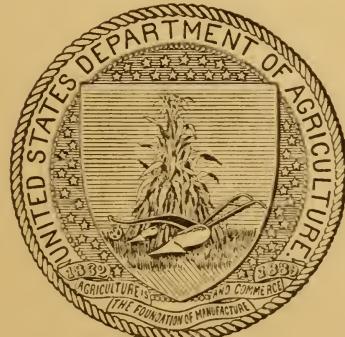
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For the Office of Experiment Stations,

AND

G. C. CREELMAN,

For the Association.



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OFFICE OF EXPERIMENT STATIONS.

A. C. TRUE, Ph. D., Director.

E. W. ALLEN, Ph. D., Assistant Director and Editor of Experiment Station Record.

W. H. BEAL, B. A., M. E., Chief of Editorial Division.

EDITORIAL DEPARTMENTS.

Chemistry, Dairy Farming, and Dairying.—E. W. ALLEN and H. W. LAWSON.
Meteorology, Fertilizers and Soils (including methods of analysis), and Agricultural Engineering.—W. H. BEAL.

Botany and Diseases of Plants.—WALTER H. EVANS, Ph. D.

Foods and Animal Production.—C. F. LANGWORTHY, Ph. D.

Field Crops.—J. I. SCHULTE.

Entomology and Veterinary Science.—E. V. WILCOX, Ph. D.

Horticulture.—C. B. SMITH.

Agricultural Institutions.—D. J. CROSBY.

LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
OFFICE OF EXPERIMENT STATIONS,
Washington, D. C., October 29, 1902.

SIR: I have the honor to transmit herewith, and to recommend for publication as Bulletin No. 120 of this Office, a report of the proceedings of the seventh annual meeting of the American Association of Farmers' Institute Workers, held at Washington, D. C., June 24, 25, and 26, 1902. The membership of this association comprises the superintendents of farmers' institutes in the different States, and it is thus broadly representative of the farmers' institute movement.

Respectfully,

A. C. TRUE,
Director.

Hon. JAMES WILSON,
Secretary of Agriculture.

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OFFICERS AND MEMBERS OF THE ASSOCIATION.

President.

W. C. LATTA, of Lafayette, Ind.

Vice-President.

J. G. LEE, of Baton Rouge, La.

Secretary-Treasurer.

G. C. CREELMAN, of Toronto, Ontario.

Executive Committee.

The PRESIDENT and the SECRETARY-TREASURER, *ex officio*; S. L. PATTERSON, of North Carolina; A. B. HOSTETTER, of Illinois, and A. L. MARTIN, of Pennsylvania.

DELEGATES IN ATTENDANCE AT WASHINGTON.

ALABAMA: C. A. Cary, Auburn.

CALIFORNIA: M. E. Jaffa, Berkeley; A. J. Stubenrauch, Berkeley.

DELAWARE: Wesley Webb, Dover.

DISTRICT OF COLUMBIA: James Wilson, J. H. Brigham, A. C. True, W. J. Spillman, P. L. Rickes, G. H. Powell, B. M. Duggar, C. B. Smith, W. F. Wight, H. E. Van Deman, J. R. Laughlin, Miss E. S. Jacobs, Washington.

FLORIDA: H. E. Stockbridge, Lake City.

ILLINOIS: J. H. Coolidge, Galesburg; A. B. Hostetter, Springfield.

INDIANA: W. C. Latta, Lafayette.

KENTUCKY: I. B. Nall, Frankfort.

LOUISIANA: W. R. Dodson, Baton Rouge; J. G. Lee, Baton Rouge.

MARYLAND: R. W. Sylvester, College Park; H. J. Patterson, College Park; W. L. Amoss, Benson; F. H. Blodgett, College Park; H. B. McDonnell, College Park; G. L. Stewart, Baltimore; W. T. L. Taliaferro, College Park.

MICHIGAN: L. R. Taft, Agricultural College.

MISSISSIPPI: J. C. Hardy, Agricultural College.

NEW JERSEY: E. B. Voorhees, New Brunswick.

NEW YORK: W. S. Myers, New York; J. S. Meng, New York; B. Von Herff, New York.

NORTH CAROLINA: B. W. Kilgore, West Raleigh; S. L. Patterson, Raleigh; W. F. Massey, Raleigh.

OHIO: W. W. Miller, Columbus.

ONTARIO: G. C. Creelman, Toronto; C. C. James, Toronto.

PENNSYLVANIA: John Hamilton, State College; A. L. Martin, Harrisburg.

SOUTH CAROLINA: H. S. Hartzog, Clemson College; G. E. Nesom, Clemson College; J. E. Tindall, Felder.

VIRGINIA: Miss S. E. Breed, Norfolk.

WEST VIRGINIA: J. O. Thompson, Charleston; W. D. Zinn, Philippi.

WISCONSIN: George McKerrow, Madison.

CONSTITUTION OF THE ASSOCIATION.

ARTICLE I.

NAME.

This organization shall be known by the name of The American Association of Farmers' Institute Workers.

ARTICLE II.

OFFICERS.

The officers shall consist of a president, vice-president, and secretary-treasurer, to be elected by ballot.

ARTICLE III.

MEMBERSHIP.

Any active worker in the farmers' institutes in the United States and Canada may become a regular member of this association on payment of the annual dues, and is entitled to one vote. A delegate member representing the State Farmers' Institute organization shall be admitted from each State and Province, on compliance with the by-laws, and shall be entitled to cast five votes on any question: *Provided*, That the annual membership dues of the person shall be \$1 and that of the State \$5.

ARTICLE IV.

DUES.

The annual dues of delegate members shall be \$5 for six representatives of each State. The annual dues of members not delegates shall be \$1.

ARTICLE V.

TERM OF OFFICE.

The term of office of the officers of this association shall be for one year from the 1st day of January next following their election, or until their successors are elected.

ARTICLE VI.

DUTIES OF OFFICERS.

The duties of the officers of this association shall be those usually performed by officials of like rank in similar associations.

ARTICLE VII.

ASSOCIATE MEMBERS.

Associate members of this organization may be elected from time to time upon the presentation of their names by some member of the association, and upon their receiving the votes of at least two-thirds of the members present.

ARTICLE VIII.

DUES OF ASSOCIATE MEMBERS.

The annual dues of an associate member shall be \$1.

ARTICLE IX.

POWER OF ASSOCIATE MEMBERS.

Associate members shall be entitled to sit in all of the sessions of the association and to take part in all discussions, but shall have no vote.

ARTICLE X.

BY-LAWS.

This association shall have power to make by-laws from time to time not inconsistent with this constitution.

ARTICLE XI.

EXECUTIVE COMMITTEE.

There shall be an executive committee consisting of the president and the secretary-treasurer of this association, ex officio, and three other members to be elected annually by ballot, who shall meet at the call of the president and have charge of such matters of business relating to the association as it shall be necessary to attend to in the interval between the annual meetings, and it shall be their duty to report such action as they may take to the next regular meeting of the association.

ARTICLE XII.

CHANGE IN CONSTITUTION.

This constitution shall not be changed except by a vote of two-thirds of the members at a regular annual meeting held one year from the date on which the proposed alteration or amendment has been first presented.

BY-LAWS.

- (1) The time of meeting of this organization shall be fixed by the association.
 (2) Order of business:

1. Calling the roll of membership.
2. Reading of minutes of previous meeting.
3. Admission of new members.
4. Reports of committees.
5. Election of officers.
6. Appointment of committees.
7. Unfinished business.
8. New business.
9. Adjournment.

PROPOSED AMENDMENTS TO THE CONSTITUTION.

The following amendments to the constitution have been proposed and will be voted upon at the eighth annual meeting of the association in Toronto:

ARTICLE III.

MEMBERSHIP.

To this article, as it now reads, the addition of the following words is recommended: "Also the United States Department of Agriculture and the Office of Experiment Stations of that Department shall each be entitled to representation in the association with the full privileges of delegate membership."

ARTICLE VII.

ASSOCIATE MEMBERS.

It is proposed that for the word "associate" the word "honorary" be substituted, so that Article VII will then read:

HONORARY MEMBERS.

Honorary members of this organization may be elected from time to time upon the presentation of their names by some member of the association, and upon their receiving the votes of at least two-thirds of the members present.

ARTICLE VIII.

DUES OF ASSOCIATE MEMBERS.

It is proposed that this article be stricken out of the constitution.

ARTICLE IX.

POWER OF ASSOCIATE MEMBERS.

It is proposed to amend this article by changing the word "associate" to "honorary." The article as amended will read:

POWER OF HONORARY MEMBERS.

Honorary members shall be entitled to sit in all of the sessions of the association and to take part in all discussions, but shall have no vote.

PROCEEDINGS OF THE SEVENTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION OF FARMERS' INSTITUTE WORKERS.

AFTERNOON SESSION, TUESDAY, JUNE 24, 1902.

The association was called to order in the parlors of the National Hotel, Washington, D. C., June 24, 1902, at 2 p. m., President William L. Amoss, of Benson, Md., in the chair.

On motion of George McKerrow, of Wisconsin, the president was directed to appoint a committee on credentials, to be composed of three members.

The president named as the members of this committee: George McKerrow, of Wisconsin; W. C. Latta, of Indiana; and G. C. Creelman, of Ontario; and instructed the committee to meet at the close of the first session.

The chair then introduced Hon. Joseph H. Brigham, Assistant Secretary of Agriculture, who delivered the following address:

ADDRESS OF WELCOME.

By Hon. JOSEPH H. BRIGHAM, *Washington, D. C.*

MR. PRESIDENT AND GENTLEMEN OF THE CONVENTION: The pleasant duty has been assigned to me of bidding you welcome to the capital city of the nation, although it hardly seems necessary to welcome you to what is already your own.

You will be welcomed by many of our citizens. Those who are engaged in business, who may profit somewhat by your appearance among us, will doubtless extend a cordial welcome.

The President of the United States will undoubtedly be delighted to see you sometime during your visit. He is a man of the people and is glad to meet the people face to face and to become better acquainted with them. The Senators and Representatives from your States will be glad to welcome you, and will try to make it pleasant for you, and any suggestions that you may make in the matter of keeping "fences" in repair at home will be well received by them.

But I can assure you, gentlemen, that the Department of Agriculture extends to you a very cordial and hearty welcome. We recognize the importance of the work in which you are engaged. We know something of it. The Secretary of Agriculture and his subordinates are trying to do something for agriculture. I believe they are doing good work for the practical farmers—for the men who till the soil. The Department's employees and the head of the Department recognize that you can render to the Department valuable assistance, and they bid you a cordial and hearty welcome, expecting no personal benefit from your meeting here.

Your work is of very great importance to the practical farmer. You come to him in the vicinity of his home. You bring to him new ideas. You give to him valuable information. You help him in various ways to win success on the farm. The progressive farmer will be greatly benefited by institutes held in his vicinity, and the man not so progressive—and we have such men on the farms, you

know—seeing the results that follow the improved methods adopted by the man who takes advantage of every opportunity to acquire knowledge and information, will be spurred to do better work on the farm.

We all realize that agriculture is the foundation interest of our country. The annual product of the American farms amounts to more than \$4,700,000,000. We can have no general prosperity in this country unless the farmer succeeds in his labor on the farm. All, then, whatever may be their calling in life, are greatly interested in any work that builds up and protects this great foundation interest of our country.

The work of the farmers' institute is not confined to giving practical information or scientific information in regard to the growing of crops. Of course you will do that work. You will help the farmers. You will tell them why and wherefore such things should be done upon the farm. You will have men who are qualified to do that; but still your work is not confined to that. The most important part of your work, in my judgment, is the influence which you will exert upon the farmer himself. You will wake him up. You will broaden and develop the man who tills the soil. You will make him not only a better farmer, but a better citizen of a grand Republic. Do not be afraid in conducting your work to give some attention to such things. You will not, of course, engage in partisan discussions, but there is no reason why these questions of political economy, which are of vital importance, should not be brought to the attention of the farmers by being discussed in the farmers' institute.

The farmer, as a rule, has not in my judgment been quite as active as he should have been in managing and directing the affairs of this great nation. Farmers generally are modest and retiring men. They almost have to be forced to the front if they come there at all. Of course modesty is commendable at times, but yet it is absolutely necessary that every individual citizen of our country who is clothed with sovereign power shall have the courage to use that power wisely and well for the protection of his own interests and the interests of his country.

Some of us remember the terrible struggle of a few years ago. Some of you participated in that struggle. You will remember the awful price that was paid to preserve the life of the nation. Had the people on the farms and in other industrial pursuits in our country been well informed upon the important questions that divided our people and set them at war, one section with another, it might have been possible to avoid that terrible struggle. There are elements of unrest in our country to-day, arising out of differences between great aggregations of capital and organizations of labor, around which must be thrown, for the protection of the individual, the strong arm of the law; and where will you turn for men who can furnish the political power to secure wise legislation and the just enforcement of the law, if not to the farmers, who live out in the peaceful homes of our country?

These combinations and organizations wield a mighty political power. All of us appreciate that it will be necessary perhaps to guard against the abuse of this power. And where do the best minds of the nation turn for help to meet this danger except to the man who lives in his home and loves his home on the farm? It is your duty and your privilege, gentlemen, as you pass over the broad fields of our country, as you come in contact with these men, to try to instruct them along these lines and inspire them with a sense of duty, and kindle anew their patriotism and encourage them to use their power at the ballot box and elsewhere for the protection of all the rights of all the people.

I may have departed somewhat from the ordinary lines pursued by those who deliver an address of welcome. I may have referred to some matters that seem to be foreign to this meeting; but I have spent the best years of my life thinking and working on topics of this character. I did not hope for fame or glory or

riches in the many lines in which men win them, but it was my hope and my desire that my influence, whatever it was worth, should operate in the direction of developing, broadening, and uplifting this mighty army of men who are engaged in tilling the soil. I recognize the fact, gentlemen, that these associations to which I have referred, these organizations that exist all around us to-day, wield a mighty power, or can do it, in the field of politics; but if we can marshal this army of men who are tilling the soil so that they will cast fearless and intelligent ballots that shall

"Come down as still
As snowflakes fall upon the sod,
And execute a freeman's will
As lightning does the will of God,"

I think we need not fear for the future of our country.

I do not believe that the Republic is approaching its end; that there is any danger that a strong man or body of men, corporations or organizations, can grasp and retain control of this powerful Republic. I am not afraid of it. I do not believe it. I know something of the boys and girls who have lived on the farms of our country in the past and who are growing up there to-day, and I feel that when the time comes that their power is needed they will be ready; and you, gentlemen, in your work can do a great deal of good along these lines. I hope that when you are engaged in the work assigned to you by those who direct the institute you will not forget to drop a word here and there that shall encourage the farmer and make him feel that he is not a powerless and helpless creature; that he is not only a citizen but a sovereign ruler of the grandest nation in all the world, and all that is needed is for him to use his power wisely and well at the right time and in the right place.

Now, gentlemen, in conclusion, I again cordially welcome you to the capital city of the nation. The members of the Department of Agriculture will be glad to cooperate with you to make your visit a pleasant and profitable one. We want to help you, and more than all else we want you to help us.

RESPONSE TO ADDRESS OF WELCOME.

By W. C. LATTA, *Lafayette, Ind.*

MR. PRESIDENT AND GENTLEMEN: I feel that my thanks are due to the programme committee for honoring me, as they have done, by selecting me to respond to the greeting which has just been delivered in our hearing. A recent and rather severe illness leaves me in no condition to perform that duty at all adequately, which I sincerely regret, and yet I am very glad to do the best I can.

I wish to say to Colonel Brigham and to his colleagues of the Department of Agriculture that we thank them for these kindly words of greeting. They have the ring of truth and sincerity. Some of us have known Colonel Brigham out in the institute field, and we know that our cause has been so much in common in the past that we were prepared to expect just this warm, hearty, kindly greeting which has been tendered to us. I am sure that this greeting includes not only those who come to us from within the States, but also our brothers on the north, loyal subjects in the Dominion of the King. They are here, interested in this great problem that concerns us, and we have found them putting their shoulders right to the wheel in everything that makes for progress in agriculture. I am glad to say in their behalf, as well, that we are very glad indeed to be here. We are glad to come to the city of Washington, with its beautiful buildings, with its historic associations, with its departments, which contain so much of

interest to us. To this pleasant city of the nation's Government, where the leaders of the nation are even now gathered and where the great leaders in the cause of agriculture are also gathered, we are glad to come to confer with you. We are here by your invitation given a year ago. It seems to us fitting that you should have invited us here. Standing, as it were, upon the ramparts, with a broader outlook, studying the great agricultural currents, asking "What of the future?" it seems fitting you should invite us who are out in the field to come here that we may confer together. It seems very fitting indeed that we should come here, that we may get from contact with these men, our leaders, that broader outlook which will deepen our enthusiasm and our interest, and qualify us afresh for the work we have to do.

The programme that has been prepared for our consideration on this occasion deals with a number of great questions which will bring up the relations of the great agricultural interests—those that center here and those that ramify throughout all the country. It seems proper that we should at this place take up these broader questions growing out of our relations, the understanding of which will help us to work together more unitedly and more efficiently.

Of the various great uplifting agencies in behalf of agriculture, I believe there is none greater, none doing a more aggressive, a broader, and more helpful work at the present time than the farmers' institute. I recognize it as a very great work indeed, although I am associated with other lines of work. While it is a great work, it is only one of many agencies to this common end; and how fitting that we should come together here, with leaders of our nation, those who have been studying agriculture in a large way for many years, to discuss these several agencies for the promotion of this cause.

In the consideration of these questions, may the keynote which has already been struck by Colonel Brigham in his words of welcome reecho again and again in our councils. May we bring to the consideration of these questions that earnest, aggressive, optimistic spirit which he has himself manifested.

We accept your words, Colonel Brigham, as coming from the heart, a warm big heart beating in a big man, and we shall proceed to make ourselves at home. While we must reserve some time for our discussion here, we shall be delighted, as the opportunity is afforded us, to go about your city and inspect the various departments and the many other objects of interest. And we hope we shall have you and others of the Department of Agriculture with us throughout our sessions.

Again permit me, Colonel Brigham, to thank you and your colleagues for these words of greeting.

Mr. BRIGHAM. Mr. President, I want to thank Professor Latta for calling my attention to my omission in regard to the visitors from the Dominion of Canada. I recognize the fact, as all of you do, that our brothers in Canada are doing some of the very best practical work. It comes as near to the farmer as any that is being done. We will help one another in the future.

PRESIDENT'S ADDRESS.

By WILLIAM L. AMOSS, *Benson, Md.*

LADIES AND GENTLEMEN: I shall try not to intrude unnecessarily on your limited time. I have found, when conducting institutes, that nothing draws and holds patrons better than to give them what they came to get, and that without delay. For those who are attending the meeting of the association for the first time, I will say our purpose in meeting is to know each other, to learn the methods of all and the results of their work. The meetings give us an opportunity to criticise the pet theories of our members and tend to unify our plans of work. A

historical sketch, with our constitution and by-laws, will be found in Bulletin No. 110 of the Office of Experiment Stations, U. S. Department of Agriculture.

The farmers' institute is the bridge that spans the chasm between the theorist, the experimenter, and the farmer. It is engaged in introducing the new but tried methods of making available nature's wealth and bringing to isolated homes that better knowledge of living which gives health, happiness, and prosperity.

We who conduct the work meet with conditions and have to contend with many forces which have more or less influence on our progress and, as I believe, on the welfare of the people. One of these forces is the present public school system. Has not the time arrived when we, who are daily closer to the food producers than others engaged in an educational work, should earnestly protest against a system which pitilessly sends into the world a man or a woman deceived into believing that he or she is prepared to cope with the forces of nature? How often we see the vain attempts of such to convert the elements in the soil. How often we see them living on the products of another's labor while they, by the hard knocks of toil, learn nature's laws of production. How often we see them become disheartened, leave the old homestead, careworn, possibly penniless, to be lost in the throng of a city's streets. Can we have this panorama before us and hesitate to press down the brakes by a full expression of our findings, and stop this mad haste to make men of letters of all who step across the threshold of our public schools?

On our programme are subjects which will give ample opportunity to spread upon the pages of our next report your convictions, your experiences, and your remedies, which will eventually raise the standard of institute work by preparing the young mind, when the child first enters the schoolroom, for what we teach.

Five-minute reports from States and Provinces were then proceeded with as follows:

FIVE-MINUTE REPORTS FROM STATES AND PROVINCES.

ALABAMA.

By C. A. CARY, *Auburn*.

This report is not made with the idea of conveying any new methods, but rather to tell you what we are doing in Alabama with very limited funds. Organized institutes have been held for the past four years in Alabama. The funds come from the college and experiment station. We received \$500 a year during the first two years and \$600 during the past two years. With these funds we have held in four years 64 one-day institutes in 55 counties, with a total attendance of 3,864, and an average attendance of 60. At some of these one-day institutes we had four sessions, at others three sessions, but at the great majority we held only morning and afternoon sessions.

The speakers were all from the college and experiment station, except in a few cases where some local help was secured. In Alabama, where great variations in soil conditions are found, visits to all parts of the State by the experiment station workers were of great value, both to the farmers and to the experiment station workers. Each learned the other's wants and needs. Our institutes have been held chiefly during the summer, when we could most conveniently attend them, but occasionally meetings have been held at other times during the year. So far our institutes have been of great value to the college and station and to the farmers of our State. In fact we are firmly convinced that they have done more to improve the methods in farm operations and stock raising than any of the many other things that have been done by our station and college. Our attendance appears small, but interest has been very good, and the farmers we have reached have taught others both by words and by object lessons.

CALIFORNIA.

By M. E. JAFFA, *Berkeley*.

MR. PRESIDENT, LADIES, AND GENTLEMEN: We have been holding institutes in California for the past ten years. During 1898 we held 79 institutes. In 1898 and 1899, 86, with an appropriation of \$4,500. Since then we have been holding about 80 institutes annually, and the appropriation has been about \$4,000. The total attendance during the last year was between 20,000 and 25,000. The aim is to distribute these meetings geographically, but the determining factor is the "spontaneity of the applications and the assurance of local preparation."

The institute staff with us consists of a superintendent, who is professor of agricultural practice of the University of California, and also horticulturist of the agricultural experiment station; two conductors, one for the central and northern part of the State and one for southern California; and the personnel of the agricultural college and the agricultural experiment station. The fund consists of an appropriation of about \$4,000, made for the entire State by the board of regents of the University of California. This fund is used for paying the salaries of the two conductors, and also for the traveling expenses of the entire institute staff, and for postage, stationery, etc. The State pays all the expenses incidental to the meetings, with the exception of the rent of the hall, the printing of programmes, advertising, etc., which expense is met by the local organization, which is sometimes the grange, sometimes the farmers' club, and at others a local committee representing the farmers of the section. The meetings consist of one or two day sessions. Any locality can have a two-day session if the local preparation will warrant it. The morning sessions are not as well attended as are those of the afternoon and evening, the evenings being generally devoted to lighter subjects, domestic science and popular topics. At the morning and afternoon sessions heavier work is done.

We encourage local speakers, and do not consider our programmes complete without them, because in nearly every instance they give valuable papers or addresses. We also like to have the cooperation of the women, as they have given some of the best and most instructive papers presented by local speakers.

The question box is a very important and prominent feature of the institute, and quite often the most interesting and valuable discussions of the meeting result from it.

The question has been often asked us, "Does the institute help the farmer?" I think we may safely say "yes." We see it in a great many ways; for instance, in the increased mailing list of our bulletins, and also in the increased number of letters from the farmers throughout the State. Again, the institute has been the means of bringing nearer together the farmers of the State and the agricultural experiment station.

We are not satisfied with our method of conducting institutes in California. For instance, as I said before, the only salaries paid to institute workers from the fund mentioned above are those of the conductors, consequently, in order to make up a programme the attendance of the personnel of the agricultural college and the experiment station is necessitated. This is certainly not conducive to the best institute work, and it also sadly interferes with the laboratory and lecture duties of the professor or instructor, who is thus withdrawn from his regular work.

We should have trained institute speakers; but it is difficult for California to procure these, for several reasons: The appropriation is small; the conditions are so varied in the different parts of the State, and the farmers' needs so diverse, that it would be almost impossible to find men who would undertake the work for the entire season, which, on account of there being no "leisure season" and our mild winter, extends throughout the college year.

DELAWARE.

By WESLEY WEBB, *Dover.*

MR. PRESIDENT: You know Delaware is a very large State! So we have three independent farmers' institute organizations in the State. They embrace three counties, one standing right on top of the other—not lying side by side in a friendly way—and of course if each one stands on the other, all are a little jealous. So when the legislature was asked to make an appropriation for farmers' institutes, it said "Yes, we will give each county \$200, and each county shall be absolutely independent of everybody else. Take it and do what you please with it, provided you use it to hold farmers' institutes." That is all the legislature said about it, except that no officers of the institute and no committee, or anybody else connected with it, should receive one single cent of that money as pay for his work; that the money should be used for paying hall rent, securing speakers, etc. But the three counties have cooperated in this work. The experiment station has been prominent in it. Dr. Neale, director of the experiment station, has had a good deal to do with it. I myself have been superintendent of the institutes in Kent County, the central county; and last winter "the two lower counties," as we call them—Kent and Sussex—united and had a similar meeting; that is, we had a two days' meeting in Kent, say on Tuesday and Wednesday, and on Thursday and Friday we took the same speakers down into Sussex, and held a meeting there.

In all these meetings we have endeavored to have the station and college men well represented. We have endeavored to have at least one speaker from a distance, a man competent in the work, and then we have depended largely upon our own home men. I may say that in Delaware we have some college men who are on the farm and who have made a success of it, and we have others who are not college men, but who are well-educated, intelligent men, who have made a success of their work practically, in all its details, some of them especially so. Those men are used very largely in the institute work.

Besides the one-day meetings and two-day meetings, we have held, especially in Kent and Sussex, schoolhouse meetings. Very nearly every farmer in the State has had an opportunity to go to a farmers' institute in his own school district—in his own schoolhouse. These meetings have been addressed by farmers and by station men, and have been attended as a rule by nearly every farmer of the district, and sometimes by many farmers of the neighboring districts. There was an average attendance a year ago last winter of about 30 at these schoolhouse meetings. Of course that is not a large attendance, but still such an attendance for meetings of that sort brought something to every man in the county.

We have had some women speakers and we intend to have more. We have had the attendance of the women sometimes and we intend to have more of them. We intend to make a greater effort to secure their cooperation.

FLORIDA.

By H. E. STOCKBRIDGE, *Lake City.*

The organization and direction of the institute work in Florida is placed by the State law in the hands of the head of the agricultural department of the State agricultural college. Aside from the appropriation of \$2,500 a year for carrying on the work, there is no restriction or limitation of law: there is not even a resolution of a board of trustees. The sum of \$2,500 is simply placed in the hands of the agricultural college to be expended in institute work at the discretion of the head of that department. That is all the organization we have by law.

The points to which I want to call attention as to the details of our work are three. In the first place, how do we select speakers and arrange programmes? We leave the matter exclusively in the hands of members of the local institutes. Our plan is to hold one institute in each county, with a county chairman to stand for the work in his county. He is selected by the head of the institute work; and then he is requested, with the cooperation of the local committees appointed by him, to select in advance from a large list of speakers and subjects furnished to him the subject and speakers that he prefers. Then we have nothing to do but to notify the speakers and to endeavor to so group the localities and the dates as to minimize the expenses. The responsibility for the adaptation of the work, for the selection of the speakers, and for the suitability of the subject to local requirements is absolutely in the hands of the local representative.

The next point I want to mention is the localization of the work. What I mean by this is the familiarity of the speakers with the local conditions that are to confront them in the places where institutes are to be held. In a somewhat extended institute experience in several States I have frequently met with what seemed to me a misfortune or an evil, if I may so describe it, from the fact that frequently speakers come from a distance and are unfamiliar with the conditions or requirements of the institute. For instance, I have seen speakers from the very western part of the State of New York designated to attend institutes on Long Island who went there for the first time when they appeared at the farmers' institute. It seemed to me impossible for people situated so differently as the best representatives of western New York would be to meet the local requirements of Long Island.

I have endeavored so far as possible to solve this problem, and have especially considered the adaptation of particular speakers to meet the wants of particular localities, because after the speakers are once selected they are supposed to be able to present facts and materials which shall be of use in a given locality and to familiarize themselves with the wants of that locality before the holding of the institute.

We designate one day as a preliminary day. The institute workers who are expected to hold an institute on a given day in a given town arrive at that town the day before; and one entire day is given to taking drives among the farmers of the locality, seeing them at work on their own farms, thus becoming perfectly familiar with the actual conditions of the farms and the crops in that locality, so that on the next day in the institute work they may speak of these conditions from their own observation.

Let me illustrate this point, because it is one that I have found very useful to bear in mind. In Lake County, a great truck-growing county, our institute men found last year that the cabbage crop of that locality—a very important one, yielding probably \$60,000 a year, at least, to the county—was suffering from the excessive use of fertilizers low in ammonia or nitrates. They found in going around among the fields that one man would have a good crop, while another man's crop would be a total failure. Then in the institute talk the next day the lecturer would say, for instance: "I noticed yesterday that Mr. B's 20-acre field of cabbage was almost a total failure, because he was not sufficiently familiar with fertilizer requirements to use the proper amount of nitrogen; and not only did he fail to use the proper amount of nitrogen, but he was using an uneconomical form: he was using cotton-seed meal, costing \$26 per ton, instead of castor pomace, costing \$19 a ton, and containing almost the same amount of nitrogen. Had he expended the same amount for castor pomace that he expended for cotton-seed meal, he would have had for the same amount of money invested better crops." The institute lecturer, of course, would not be able to talk in this definite

way if he had not spent the day before in familiarizing himself with local conditions.

One other point to which I wish to call attention is the disbursement of institute funds. There has been in my experience a very great diversity of practice and experience along this line. Institute workers, I believe, are as a rule expected to meet temporarily their own traveling expenses. Sometimes the business methods adopted necessitate their paying out their money in the first instance, and then waiting perhaps a month or two months or three months before being reimbursed for the very considerable expense they have incurred out of their own pockets. Most of us, of course, are required to report on the expenditure of funds to the local authorities, and our accounts must be audited. The question has been, How can we remedy this evil of requiring the poor farmers engaged as institute workers to expend large sums of money from their own pockets and then wait an unreasonable time for reimbursement? How can this be done without at the same time interfering with the ordinary system of doing business? My solution of that problem is this. I have adopted practically the railroad system. Nearly all the great railroads of this country meet all expenditures, pay all bills, by sight draft. We use the sight draft method in our institute work. Whenever an institute worker incurs any expenses, he gives me an itemized bill, and I furnish him with a sight draft taken from a book in which there is a stub for each draft; and on each draft appears an itemized statement of the expenditure. The stub also shows every item of expense. The sight draft can be cashed by the worker through any bank or any country merchant. After passing through the ordinary channels of banking, it finally comes back to the college treasurer, who pays it with his ordinary warrant. So that there is no change in the ordinary methods of doing business so far as the State treasurer or the college treasurer is concerned; yet the institute worker in the field receives his cash payment as he goes along. By means of my stub book I can tell exactly what every institute in every single locality has cost for postage, car fare, traveling expenses, and every other item. This, it seems to me, is at least a simple and effective method for accomplishing something which is worth doing well and with satisfaction to the parties concerned.

The PRESIDENT. In reply to Mr. Stockbridge, I am impelled to make a statement as to my own experience. Several times in my territory, when I have used strangers as lecturers—that is, men not accustomed to the section of country in which they are expected to travel and lecture—I have found that fact an advantage. I go into a section of the country where I have been before, where I know the people and their conditions and their needs. I find some localities so situated that they are not familiar with what is being done in the outside world. The people are as intelligent as any others that you may meet, but the conditions are such that they do not mingle with the outside world, do not know what the methods of other sections are, do not know what crops other sections raise or what new industries might be introduced in their own section. But having thought that out myself, I frequently bring in a man from outside, a stranger, you may say, though a man of experience, of course, and I let him give his methods of doing whatever may be the thing under consideration—we will say dairying. I do not ask him to conform his methods to that particular people at all, but expect him simply to tell them what he is doing in his locality, leaving the people to decide whether they can use those methods or not. I think in this way a man may do some excellent work—by going around with the lecturers to the different parts of the State. I think a stranger can often do a great deal of good by introducing a discussion of a new industry into a locality. I think that for this reason the stranger has often an advantage over the local man.

ILLINOIS.

By J. H. COOLIDGE, Galesburg.

MR. PRESIDENT AND GENTLEMEN: We of Illinois feel as if we were "on top" in institute work. We have the best system and we hold the best institutes, and more of them, than any other State in the Union. I come down here, a farmer who lives on the farm and earns his bread by the sweat of the hired man's brow, to tell you about it.

Our system of institute work is twofold. First, there is an organization in each county with a full corps of officers—president, secretary, treasurer, and executive committee—who take entire charge of and are responsible for the county farmers' institute meetings. They select the subjects, arrange the programmes, and carry them out. For this work the State appropriates for the use of the county \$75 per annum. Some of the institutes are held for very much less money than that, but those are the counties that are not very progressive. As a rule, our institutes cost from \$100 to \$150 for each county. The balance of the money is raised in some other way by the counties themselves.

Then there is the Illinois Farmers' Institute, an organization with one director from each Congressional district, and there are five ex-officio directors, the dean of our agricultural college, the president of the State Dairymen's Association, the president of the State Agricultural Association, the president of the State Horticultural Association, and the superintendent of public instruction. This State institute holds an annual meeting of three days or more, to which delegates are sent from the various county institutes. This State institute publishes a full report, both of the county institutes and of the State institute, and through the directors of this Illinois institute there is a Congressional district institute held. Whichever county in the Congressional district holds the meeting the other counties send their delegates to that meeting, so that we have more than one opportunity of getting farmers together. We get to rub up against each other and get acquainted and find out what is going on in different parts of our own Congressional district, as well as in different parts of our State.

Then the directors act in a sort of advisory capacity with the county organization, recommending and publishing a list of speakers, making suggestions in regard to programmes, the managements of meetings, etc. Each director has a general oversight of each county institute in his district, to see that nothing goes wrong, to keep off the programme anything that does not strictly belong in a farmers' institute meeting.

Then, through our State institute also are awarded scholarships in the college of agriculture. The trustees permitted us, when we put up our new agricultural building, the privilege of selecting one person from each county for a scholarship running two years, and we found this to be a great help both to our young men and to our agricultural college, for we were rather in the rear at the agricultural college until within the last three years; but now we begin to think our college is in the front rank.

The State institute is also, through a special committee, cooperating with the experiment station in soil investigations and experiments, for conducting which we secured a year ago last winter an appropriation of \$10,000. For all the experimental work in the college of agriculture we had an appropriation of \$53,000 over and above what is appropriated by our legislature for the university at large. For the general work of the Illinois farmers' institute, that is, for traveling and office expenses, an appropriation of \$8,000 per annum is made. Then we have a system of free traveling libraries for rural districts, for which an annual appropriation of \$2,500 is made. Including this sum the appropriation for farmers' institutes is

\$18,150. Furthermore, many of the counties raise funds varying in amount from \$25 to \$600 to supplement the State appropriation.

Our meetings are very largely attended, taxing the capacity of halls to their full extent. The work of the institute is showing itself in improved methods of farm management, better grades of live stock, more care in the selection of seeds and grains grown, better home surroundings, more interest in education on agricultural lines.

We have in Illinois, supported by these institutes, State and county domestic science associations, managed by the women of the State. These associations conduct sessions at State meetings and county meetings, and are an important feature of our institute work. They do much to increase the attendance of the younger people and to interest the entire family in the institute work. They are doing much to improve the home environments and home comforts and are a strong element in the improvement of the rural schools. Some of the most practical and interesting sessions are those managed by the domestic science associations.

INDIANA.

By W. C. LATTA, *Lafayette*.

Mr. President, I wish to submit a summary I have prepared of farmers' institute work in Indiana.

(1) Appropriation: Ten thousand dollars per annum.

(2) Disbursement of institute funds: Twenty-five dollars to each annual institute for local expenses, in all, \$2,300. The balance is expended for salaries of officers, per diem and traveling expenses of assigned speakers, printing, postage, stationery, etc.

(3) Kinds of institutes held: (a) An annual institute in each county, 92 in number, usually at the county seat; (b) supplemental institutes near county boundaries, at points midway between the places of annual meeting; (c) district institutes, special in character, to suit the section of State where held; (d) an annual conference of institute officers and speakers.

(4) Number of institutes held the past year: Annual, 92; supplemental, 104; district, 4; annual conference, 1.

(5) Length of institutes: Each annual institute continues two days. As a general rule five sessions—three the first day and two the second—are held. As a rule supplemental institutes are two-day meetings, with five sessions. A few one-day dairy institutes were held the past year.

(6) Distribution of institutes: Annual institutes, generally near center of each county; supplemental institutes at such points near county boundaries as will bring an institute every two or three years within reach of every farmer of the State; county lines are entirely ignored in locating supplemental institutes.

(7) Speakers: The institute speakers are mostly actual farmers, stockmen, dairymen, fruit growers, gardeners, and farmers' wives. Members of the station staff attend meetings whenever desired, if practicable. The great bulk of the speakers are from the farm.

(8) Assignment of speakers: Two speakers are assigned to the annual and two-day supplemental institutes; four or five speakers are assigned to the district institute; ten or more speakers are on duty at the annual conference.

(9) Women institute workers: Farmers' wives were assigned to 44 of the 92 annual institutes held the past season. In addition to this an instructor in domestic science devoted the entire month of December and one-half her time during the months of January, February, and March to lecturing on her specialty at farmers' institutes. She gave no demonstrations, but made free use of charts.

(10) Women's institutes: Three plans are in vogue: (*a*) Separate sessions for women at the time of the annual institute; (*b*) women take charge of one or more sessions of the annual institute; (*c*) women hold an institute of their own on another day. The first plan takes well in counties where the audience exceeds the capacity of the hall. The second plan is quite popular in a number of counties, as it does not divide the audience. It has the advantage of creating a spirit of emulation. The third plan has been followed, so far, only in one county, but it has been very successful.

(11) Institute season: This is limited by law. It begins November 1 and ends March 31. All annual and supplemental institutes are held within the season. The district institutes are held in August and September; the annual conference a few weeks before the opening of the institute season.

(12) Local cooperation: A permanent local organization in each county has charge of all local arrangements for the annual institute, including securing hall, advertising the meeting, printing programmes, securing local workers, etc. A local committee provides hall, programme, local speakers, etc., for each supplemental institute, and meets all expenses except for the two speakers that are assigned by the general management and paid out of the general institute fund.

(13) Attendance: The attendance ranged, the past year, from 45 to 1,500, with a general average of 280. In about one-fourth of the counties the hall capacity has been exceeded. In such cases separate sessions for women in the afternoon, when the crowd is greatest, have been recommended, and have been found to be very satisfactory.

(14) Character of the audiences: This depends very largely on the local officers. A broad gauge, wide-awake man of good standing will bring out the very best people from both town and country. A cranky chairman, with a spirit of antagonism for everything not agricultural, will bring out a small attendance of chronic grumblers. This was especially true in the early days of the institute work. Fortunately, almost without exception, the work has so grown and approved itself that such men can not now be chosen chairmen. It is still true, however, that the character and size of the audience does depend, to a considerable extent, upon the intelligence, liberal mindedness, and "push" of the local officers, especially the chairman. Women and young people constitute a steadily increasing percentage, and in many cases a decided majority of the audience. The intelligence of the audiences is also steadily increasing; this is shown in the character of the questions asked and in the urgent demand for the best "up-to-date" speakers.

J. E. TINDALL, of South Carolina. Do they employ paid lecturers in Indiana, or how is the money spent?

Mr. LATTA. Aside from this \$2,300, which is apportioned to the counties, the institute fund is devoted chiefly to the hiring of speakers, and then a small part is devoted to salaries and clerical work and office expenses. We send two speakers, expenses paid, to each annual county meeting and supplemental meeting.

Mr. TINDALL. Do you send the speakers from the colleges?

Mr. LATTA. Our speakers are largely practical farmers, fruit growers, dairy-men, stockmen. We send members of the station staff whenever it is desirable, but the great bulk of our work is done by these practical men, and we are seeking especially to get the practical man who is an agricultural college bred man, because in that way we tie the scientific and the practical sides together.

Mr. WEBB. Do you pay their expenses?

Mr. LATTA. Oh, yes; and we pay them a regular salary, as well. In our State the salary of the beginner ranges from \$15 up to \$25 per week.

Mr. MCKERROW. And his expenses?

Mr. LATTA. Yes, his expenses, necessarily.

MR. TINDALL. How do you ascertain who are the most desirable?

MR. LATTA. We have several ways of ascertaining that. One way, which is perhaps peculiar to our State, at least so far as I know, is this: We publish a large list of workers, containing the names of the regularly assigned speakers and many others. These lists go to all the officers throughout the State, and they invite a man who is near by to work with them. When good recommendations come in as to the work of that man, and we see he is a good practical man, he is put on the list of active workers. We reach out for the best. Thus far we have gone into Ohio, Michigan, Wisconsin, Minnesota, and Illinois for help. We propose to get the best as far as we can afford it.

KENTUCKY.

By I. B. NALI, *Frankfort.*

MR. CHAIRMAN AND GENTLEMEN: I have so recently joined this organization that I scarcely feel competent to undertake even to summarize what we are doing in our State. A year or two ago I had the honor to respond for my State before the National Live Stock Association at Salt Lake City, and I was in a measure mortified in responding for a Kentucky which was turbulent and somewhat gory-handed. But I am glad to say that to-day we have a peaceable State. The white wings of peace are fluttering in every neighborhood, on every hilltop, and over every farm in our State. With our peace has come a desire for more knowledge among the farmers. After developing our timber and other resources, we are digging into the mountains and getting at the best of coal; we are drilling into the earth and developing new and important fields of oil; we are cutting down timber and having it worked up into useful articles of commerce or shipping it to other places for this purpose. And our farmers are thirsting also for knowledge. They want to increase the fertility of their soil. They want to increase their crops, making their yields compare more favorably with those of the States north of us. In order to do this, they are giving encouragement to institute work. We believe it is necessary to reach the farmer's understanding. It is necessary to instill into him the desire to do better. It is necessary to get him to think that the old methods have passed and gone, that his grandfather was not the best farmer in the world, and that he can be a better one if he will try.

Our State has an appropriation of \$13,000 for a bureau of agriculture, labor, and statistics. I have the honor to hold the position of commissioner, and I may say that the bridle is about taken off and we can do about as we please, provided we keep within the appropriation. Former commissioners have not expended the whole of it, because they have not "branched out." They have not done enough work. They have been rather afraid to undertake it. I am trying to spend every dollar of the \$13,000 appropriated. I am going to do it if I possibly can, or come so near it that what is left will not be worth going after. But I am trying to spend this money in good work—in improving our people and stirring them up. The question is, How shall we do it?

Now, I thought over that matter. My predecessors have gone around and made appointments all over the State, and followed day by day with good lecturers who too often lectured to empty houses. This, I thought and believed, was because they lacked local influence to work up the institute. The commissioner would appoint a day and select the lecturers, but there was no programme—nothing to excite interest among the people at home where the institute was to be held. Therefore I made it known that before the department could be used for the institute a local club at home must be organized—an institute or grange or something that would give me an organization to take hold of. I have with me a circular,

which I will leave with the secretary, detailing the plans upon which I worked. Now, when people write and ask for an institute, I tell them to make up a local programme themselves, putting in such lecturers as they want to hear—those most competent to lecture on the different subjects—because it is necessary, I think, to have a little home influence in order to succeed. Then, when they submit the programme to me I work in harmony with our agricultural experiment station, in which we have some of the best men. Professor Scovell, as you all know, is in it, and he has aided me whenever called upon, if he possibly could, and if he could not he has sent some capable man. We have young men there who take an interest in this work. Then I add one or two at every one of these institute meetings. I also reach out into our neighboring States of Indiana and Ohio. I have brought some of the talent from those States, and I realize how far superior those men are to us in this work.

Then we hold these institutes. We carry out the programme strictly as it is prepared and agreed upon. The next thing of importance is to bring the matter before the people generally in that neighborhood, in that end of the State, I may say. For this purpose I go myself to these institutes. I am pretty quick with a pencil, and I take down in condensed form the discussions. After the reading of each paper the subject is opened for discussion. If there is no paper read, if it is a mere lecture, I catch the gist of it as best I can. Then I arrange all this matter that I have collected: papers read, summaries of lectures and discussions, and give them to our public printer for publication.

A summary, which I have here, of one of our two-day institutes makes four closely printed pages. We have some 10,000 or 12,000 copies of these printed. These cost very little after you once get the type up. I employ the State agricultural press to print the name on these summaries, which are then folded in their circulation, thus reaching all of their subscribers within our State. I then furnish copies of these summaries or supplements to the papers of the county where the institute has been held and of adjacent counties, to be distributed in the same manner. In this way I place this matter before every prominent farmer and reading man in that community within the range of five or six counties, because, in addition to the method of circulation already described, I buy some 3,000 copies of the agricultural paper and send them in the same way to a list of names gotten up by the postmasters and not duplicated by the agricultural papers.

In that way, in connection with 10 institutes I held last winter, we had close to 100,000 readers, if people read what they get through the mail. The subject-matter, of course, is such as they are interested in locally and such as I believe they ought to be interested in. I believe I get in this way a larger circulation for our proceedings than could be obtained by any other plan. I reach more people with the institute work without the necessity of holding so many institutes. I tell you of the plan which I have. I am ready to adopt yours if they are better, and I have no doubt I shall hear of some that are better before we get through.

I am asked, Mr. President, upon what authority the institutes we hold are ordered. They are held simply upon the authority given to the bureau of agriculture and the instructions to hold institutes and to expend this money for the benefit of the farmer. We have no board of agriculture, but we have an advisory board.

Mr. CARY. May I ask the gentleman whether he has any idea about the number of farmers who read these printed reports?

Mr. NALL. Of course I can not tell; but I am satisfied that a great many of them do. I hear of hundreds of them. They tell me about it and write to me about it. I should say eight or ten thousand read the proceedings of each institute.

MARYLAND.

By WILLIAM L. AMOSS, *Benson.*

Our annual appropriation has increased from \$3,000 to \$4,000. We are asking for \$5,000, feeling that with this sum we can conduct in Maryland as good institutes as can be conducted in any other section. The interest in the work is growing; the audiences are increasing in every section. Our meetings bring out a full attendance in every county. Still the percentage of farmers who attend the institutes is small. If we have an attendance of only 100 in a county where there are many thousand, I consider it a small attendance. But good men from other States, who have worked in many places, not alone in their own States, tell me that our audiences compare very favorably in number with those in other States.

The five-session institute is, in my opinion, an ideal institute; but in our State you will not in such an institute reach as many people as in a one-day meeting. The one-day institutes, however, are very hard on the institute worker. I travel with the institute workers myself, and I know what it is to hold a one-day institute for days in succession in different places, being compelled often to catch a train as late as 10 or 12 o'clock at night and then get up early the next morning in order to catch another train. As I said last year at Buffalo, I have done this kind of thing once, but will not do it again.

I am trying a new plan—something I have not met with in other places; that is, to collect as many questions for the institute work as I possibly can, bundle them up and take them with me. And then when the questions are presented at the meeting I have a stenographer take down the questions and the answers. These questions and answers I have printed on one large sheet, copies of which I send out to various newspapers of the State, which publish the material or not as they choose. This plan saves me the labor of preparing such publications for the various newspaper reporters who have been in the habit of applying for them. It seems to have met with favor. I will give it further trial and report later.

In our work charts have been found very satisfactory.

Some remark has been made about the impossibility of conducting an institute without music or similar entertainment. I have found that the lecture on domestic science has always held the audience—has interested and instructed them at the same time, and has never failed to be asked for again. I do believe that you can conduct an institute without resorting to what may be called amusing entertainments. I say that an institute director who can not interest an audience—who can not conduct a successful institute by giving simply sound instruction—is a failure as an institute director.

At one meeting where prizes were awarded for poultry half a dozen coops of poultry were brought in at the evening session and the gentleman who had acted as judge of the poultry explained to the audience why he had awarded prizes to certain fowls and not to others. This proved to be a very interesting and valuable meeting. It was largely attended by both men and women, and I believe they were very much benefited. They said they were.

The question box has not been a success in Maryland, but during the past season it has been freely used, much more so than before, and I believe the publication of answers in the local press will bring out many more questions in the future.

It has been found beneficial to have men from each county visit the farms, the markets, and other points of interest and hear the addresses of men interested in special lines, lines interesting to their sections; and when we return to their counties and hold an institute, they write reports and read them. The local press will generally publish such reports in full. In this way I have interested sections that were somewhat prejudiced against institute work and have gotten audiences where at first I failed. I believe some good work can be done in that way.

ONTARIO.

By G. C. CREELMAN, *Toronto.*

MR. PRESIDENT, LADIES, AND GENTLEMEN: In thinking over our work, I decided I would take up one particular branch, which I consider our strong feature; that is, our county organization. After visiting most of the States of the Union that have farmers' institute systems, and visiting also the different provinces of Canada that have farmers' institutes, I have come firmly to the conclusion that in all these States and provinces the time is ripe for the superintendents or those in charge to give more detailed time and attention to the perfection of the permanent county organizations.

I believe that the institute system in its inception was intended largely to entertain the farmers. We had to put on our programme something that would bring the farmers out even from curiosity. But with us and in a number of the States that time has gone by, and the farmers now come to be instructed: to carry away something of a practical nature. If that be the case, I believe we have got to do something better than to give the farmer one meeting a year. I believe we have got to approach more closely to the public school system—to establish a sort of college extension work, aided by the State and carried out by the people themselves.

We have done that to a certain extent in the Province of Ontario. We have 94 electoral districts, as they would be called here; and in each there is a permanent farmers' institute, with a president, a vice-president, a secretary-treasurer, and a board of directors, the board being composed of men selected, one at least, from each township of the district; so that we have in every municipality active agents. Each institute must according to our system hold at least six meetings a year. Those six meetings may be held in six different places, or they may be held in two or three different places, as the directors see fit. From the 1st to the 20th of June, each of these ninety-four institutes holds its annual meeting. Those annual meetings are very largely of a business nature, though in many instances we send a speaker to address them. At this time the business of the year is transacted. The reports are made out at that time and sent to me. Four different forms for these reports are supplied by us. The first sheet shows the officers and directors elected at that meeting: the second gives a list of the meetings held during the past year with the attendance at each, the number of addresses delivered, etc.: the third gives a list of the meetings they wish to hold and for which they want us to arrange, for the next fall, winter and spring—extending up till the next annual meeting: the fourth sheet shows the moneys received and expended. We give each local institute \$25 only. In our province each local institute is empowered to charge—and here a number of you may differ with me as to the wisdom of our policy, but we have worked it out successfully in our province, and I think you would find it good in the States—in our province each local institute is empowered to charge each member of the institute who wishes to affiliate 25 cents. Every farmer who wishes to get the benefit of the institute must come forward to his local secretary some time during the year and pay this 25 cents.

You may say that your American farmers will not do this. Some of us said before the system was put into operation that our Canadian farmers would not do it, and for a long time they said that they would not do it. But in the Province of Ontario our geographical position is similar to that of your northern and central States: our people, like yours, are engaged in mixed farming. When you see some of our farmers upon an excursion to Lansing or Cornell you would not know whether they were Canadians or Americans. I believe that if in your institutes you undertake to continue to give your farmers something for nothing, they will come to depreciate the advantages which you offer them: but when a man has paid 25 cents annually for his privilege of taking part in the farmers'

institute, he will, when the time comes round, hitch up his own horse and rig and drive to the meeting, simply because he has an interest in that meeting, having paid money to help the organization.

The money received by the institute in the form of these 25-cent contributions is expended by it and reported to us, and the accounts are audited once a year.

In return for this annual payment of 25 cents, the local secretary guarantees six meetings in the electoral district during the year—six at least. In some cases there are as many as 12 or 15. In addition to that, the contributors receive by mail the report of the superintendent of farmers' institutes, containing the addresses of the men who have been engaged in such work during the past year. In addition to this, the contributors receive all the various publications of the Department of Agriculture, such as the reports of the Dairymen's Association, the Fruit Growers' Association, the Good Roads Association, and a number of others—all such publications as the Department of Agriculture issues. Through our institute system we arrange with the Department that these reports shall go only to our members.

Mr. LATTA. Does any difficulty arise from refusing to distribute these reports to those who are not members?

Mr. CREELMAN. I do not think we are as strict in enforcing the rule as we might be. There may be individuals who have a special right to receive this literature. I should have modified or qualified my statement by saying that such organizations as I have mentioned—the Fruit Growers' Association, the Dairymen's Association, etc., receive their reports as members of their particular associations. We reach the individual members of the local organizations.

Mr. LATTA. Do these 25-cent contributions furnish sufficient funds for carrying on this local work, or do you have to reach out for funds in other directions?

Mr. CREELMAN. The supply from this source is supplemented to some extent. In the first place we pay \$25 to the local organization once a year. That grant is dependent upon the payment of a like amount by their county council. The people of the locality go to the council and say, "The Department of Agriculture is going to give us \$25, provided you give us \$25." Ordinarily the county grant is obtained, and that fact is reported to me before I send the \$25.

This might not work in every State of the Union. I remember that in Wisconsin Professor Henry said: "You have up there a kind of coercive government; but with us, independent farmers can not be compelled to do anything of that kind that they do not want to do." But I think the fact that so large a number have come forward with their contributions is sufficient indication that the scheme will work, because the people will appreciate what is done.

Thus it will be seen that each institute has a fund of \$50 out of which to go ahead with its work. Supposing that there are 200 members, the 25-cent contributions of these will furnish another \$50, making a fund of \$100. This fund is used to pay the rent of halls, to arrange and advertise meetings under our jurisdiction. There is nothing we have found harder at first to control than local advertising. The local committee in whose hands the matter is left often do nothing, and finally when the time for the meeting has arrived, we find that nothing has been done to make known the time and place of meeting. To overcome this difficulty, we get up a poster printed on canvass, so as to be durable. We send one to each secretary, notifying him, "We expect you to distribute, at least two weeks before each meeting, a poster similar to this, and have it placed in every blacksmith's shop, every schoolhouse, and in all public places in the district; and you must send us, two weeks in advance, a copy of the poster you have gotten up, so that we shall know you are doing the work. One week before the meeting, you must print a programme containing information in regard to the meeting—a small programme for the hand—and send copies to every school-teacher and to

quite a number of the pupils: let the children distribute copies at their homes, and you must send us also a copy of the programme, so that we may know what is going on."

That county organization gives us a hold on those people of the province, enabling us to reach them for every purpose: and I will tell you some of the purposes for which we want to reach them.

For a time we were handicapped in our endeavor to supply the object lessons necessary to back up the practical talk of our lecturers in the winter time. It seemed impossible to get up object lessons other than chart work, model work, etc. We can not take cows or horses into a schoolroom or church or other public hall for exhibition; and although, when the weather allows, we may take the people out on the roadside to listen to a practical talk in connection with live stock, the weather is often too severe to admit of this. That difficulty we have solved in this manner: We have arranged every year that each institute, or sometimes two, three, or four institutes acting in conjunction, shall during the month of June run an excursion to the agricultural college, where, on the grounds of the institution, all these desirable object lessons can be given. Last year 30,000 farmers patronized these excursions through the farmers' institute organization, and this year we expect to have as many as 40,000. Upon the experimental plats of the college, when these visitors come there, are to be seen the different kinds of grasses, clover, grain, etc.; there is also an opportunity to see dairy work and poultry raising. The farmers go from one building to another, and the professors give short talks. In this way the winter's work of the institute is supplemented by these object lessons, and when these farmers meet in the institutes, the lecturers talk about something that the farmers have already seen practically illustrated.

Then, again, we try to get our institute workers to attend the Provincial Winter Fair, which is held in December. There we have many object lessons, particularly in live-stock work. Our live-stock exhibits have probably no parallel on the continent. The animals are exhibited in a large building which accommodates 20,000 people. The animals are first judged as live stock from a market standpoint; then they are taken away, slaughtered, and brought back to be judged in the carcass. We have expert packers from large establishments to give us a talk on the carcass.

In the last two years we asked the farmers' institutes to cooperate with us in holding this winter fair, and each institute paid \$5 from its membership fees to the fair, on condition that all the members should be allowed free entrance to the building during the continuance of the show. As a result of this more than 2,500 institute members presented tickets at the door, some having come hundreds of miles. With the intelligence thus acquired these farmer visitors return to their respective communities to leaven the loaf with their information in regard to what the farmers ought to produce, what ought to be the market price for certain products, etc.

SOUTH CAROLINA.

By J. E. TINDALL, *Silver.*

We are somewhat in the incipient stages of this work in South Carolina; still I think we have accomplished a great deal for that locality under our peculiar conditions. I see very clearly that we are only starting out. I agree very thoroughly with what Mr. Brigham has said, that this is a most important work, and that you can confer no greater blessing upon the whole people of the United States than by bringing her farmers up to a knowledge of their own business and of their rights and duties as citizens, ranking equal with the members of all other

professions. An institution like this can certainly be a very great benefit in unifying and harmonizing this work throughout the United States.

In South Carolina the care and management of our department devolve upon the board of trustees of Clemson College, who are authorized to use what funds are available for farmers' institutes.

We have a large plant and a large number of students—between 500 and 600. The people of the State are interested intensely in this work, although there are seven other colleges of the State of high grade well filled, having about all the students that they have capacity to educate.

The board of trustees appoints a committee of their own members, who, with the president of the college, have the direction of the institutes. At the beginning they held institutes in every county of the State, to interest the farmers; but having very limited funds they afterwards concluded to leave it to the different communities to arrange for the holding of a farmers' institute, the college then to supply the speakers. In addition to that, we have one general institute for the State at the college itself. The people are invited to gather there, and they are boarded at 50 cents a day. That is the whole cost. The students are away, and the dormitories are vacant, so that these farmers attending the institute can be readily boarded.

Last year we had 23 institutes. Between 5,000 and 6,000 people attended them in different counties, and were very much interested. The people arranged for the institutes, they asked for the speakers, the speakers were provided, and many of the most intelligent, active, progressive farmers of the State attended the institute. They interchange opinions with each other; they get the opinions of the professors in their various lines. Thus the institute is working like a leaven, and is doing an immense amount of good. It reaches the best, the most energetic, the most progressive part of the population, and the benefits are distributed throughout the State. Thus an interest is being awakened in the scientific knowledge of farming.

I appreciate very much the fact that you are trying to bring up your people to the level of their best farmers. But a good farmer succeeds sometimes on account of local conditions, without having a very scientific knowledge of the subject. In South Carolina we recognize the very great necessity of imparting accurate, scientific instruction to the farmer; in other words, he needs to be taught the true principles underlying agriculture, and the special principles that apply to its different branches.

Our conditions are different from yours. We have a plant that we grow that is one of the best in the world, one of the most important, one of the hardest, one exactly suited to our climate and our soil and the conditions of labor existing with us, one which is always saleable, which is almost absolutely indestructible except by fire. It is the most fascinating crop in the world; and therefore you can not keep the people from pursuing its culture. Of course I refer to cotton. Take a man from the North, or anywhere else, and introduce him into our communities, and though he may say at the beginning, "I will not plant cotton; I will do this or that;" yet in a few years he goes into cotton raising.

We use a large amount of commercial fertilizers. The people are interested to know the exact proportions of potash and of nitrates to be used. The people attend the institutes and expect the scientific men there to enlighten them on those points, and the lectures given are very instructive. What we want is to enlarge the branches of instruction so as to teach animal industry, dairying, and other farming industries, in order to diversify our crops.

H. E. STOCKBRIDGE, of Florida. Are the speakers that are furnished to the institutes selected exclusively from the college faculty, or do you go out and get successful farmers to take part in the exercises?

Mr. TINDALL. At one time we did go out and get a few successful farmers. But the people of our State now want scientific knowledge. They want to see the professors for themselves, and in that way to know that they get information which is correct. So that now we use the professors of the college.

One drawback which we experience—and no doubt it is experienced elsewhere—is that a great many scientific men are not able to translate their scientific knowledge into popular language. Many men make good professors and serve well as teachers before their classes, but have not the gift of putting their knowledge into language which is intelligible to the people at large. Therefore our laborers are few and the harvest is rich.

WEST VIRGINIA.

By J. O. THOMPSON. *Charleston.*

Our State was only 40 years old last Thursday, so that we can not give you any ancient history on the work of the farmers' institutes in our State, and I will not attempt it. The work of the farmers' institutes in our State is done under the auspices of the State board of agriculture, consisting of seven members, who by law must all be practical farmers, actually engaged in farming. According to law they meet twice a year—in October and April. At the October meeting they make a list of all the institutes to be held, giving the county and the date, for the next six months. They also designate two members of their own body to be present at each institute. They have full charge of the employment of outside help. For some of their help they reach over into Ohio, and I will say that we have had some very efficient help from that State.

The secretary of the board, who is the superintendent of the institutes, simply corresponds with the local institute officers. We try to have in every county of our State (there are 55 in all) a president and secretary of the local institutes. It is their business to correspond with the superintendent of institutes and to fix the place in the county where the institute shall be held, and to select all the workers and arrange the programmes. The superintendent of institutes sends a list of the institute workers who are available, with the subjects that they treat, and from this list the local president and secretary select the subjects they want treated by the men who are coming; and then they send the copy for the programmes to me; I have it printed by the public printer and send it back. We have a poster printed, with the name of the county and the date left blank (a large pile of these posters is printed by direction of the board), and when any particular county is getting ready for an institute we send them some of these posters and they fill them up.

Our State appropriates for the total expenses of the board of agriculture \$10,000 a year. Aside from that, we have an appropriation of about \$1,000 a year for the distribution of literature relating to animal diseases, etc.

We have never had any trouble as to the overcrowding of buildings in which institutes are held. We have not had a single instance of a person fainting away on account of the crowd vitiating the atmosphere.

General Howard, when he was visiting a colored school in the South, asked: "What shall I tell the people of the North?" One little fellow cried out: "Tell 'em we're risin'." I suppose I might make such a report as to farmers' institute work in West Virginia.

One more thing I wish to mention. Under the authority of the board, the secretary of the board of agriculture of West Virginia publishes a monthly farm paper called the "Farm Review," a paper of 32 pages, the same size of page as the American Agriculturist. It is published at a small subscription price, and I am happy to say that the farmers seem to appreciate it very highly.

The circulation of this paper last October when I took charge of it was 2,750.

When I left home I left orders for printing 6,000 copies of the July number. The paper is divided into departments, and the consulting members of the board are department editors. We have Professor Atkinson, of the State university, as editor of the department of agricultural science. We have one of the leading poultry breeders of the State as editor of the poultry department. We have a leading dairymen for editor of the dairy department. All those departments are represented each month; and I, as editor in chief, undertake, as we used to say in New England, to "fill up." I believe we are doing very excellent work through the publication of that monthly paper.

My Florida friend touched upon the question of the payment of workers. In our State the board authorizes the secretary to draw on the treasurer through the auditor for \$500 or \$1,000 at a time. He keeps this money on deposit in bank; and when any one of our institute workers, whether a member of the board or other person, wants his bill paid, he simply sends an itemized account to the secretary, who either makes a requisition on the treasurer, which requisition is signed by the president, or, in case of an emergency, draws his check as treasurer of the board and pays the bill at once. We find this system to work excellently well.

The PRESIDENT. We have adopted the same system.

Mr. MCKERROW. In regard to the matter of the payment of workers, we formerly had in Wisconsin the system which has been described by the gentlemen from West Virginia, that of drawing a bulk amount. Sometimes I have drawn as high as \$2,000 and checked it out in small sums. But we were the only one of all the departments of the State or university that was doing that, and finally it was decided it would hardly do to let the farmers be an exception, that they were no more honest than others, and that some officer entrusted with large sums in this way might skip off to Canada. So a rule was adopted, or rather reenacted, that no money should be paid until sworn statements with vouchers attached were placed in the hands of the auditing committee, and that every account must be audited before being paid. Under the present system, I have sometimes had \$2,000 of my own money invested in institute work. I think the difficulty in connection with this matter may be gotten around upon the plan of the gentleman from Florida; at least I am going to carry the idea home and submit it.

WISCONSIN.

By GEORGE MCKERROW, *Madison.*

Wisconsin began this institute work as a distinct system by an appropriation of \$5,000 in 1885, which was increased to \$12,000 in 1887. This is an annual appropriation, and under it we are holding our farmers' institutes. During the last year Wisconsin has held one hundred two-day meetings, of five sessions each; one three-day meeting known as our "round-up;" and ten one-day meetings, in the newer sections of the State. Our meetings are held in what we find to be the most available season—from the 20th of December to the 20th of March. We publish what is known as our annual bulletin, the fifteenth edition of which is now going to press. This is an illustrated book of 320 pages, the illustrations being drawn from the different farms of the State. For the publication of this bulletin we get some returns in the way of advertising. This year the return will be about \$2,700 from fifty pages of advertising at the close of the book. The expense of this publication is paid for, not out of the printing fund of the State, but out of the farmers' institute fund. It could be printed as State printing, and we have considered that question, as we might thus save about \$3,600 of our funds; but we have found that the State printers could not always get out the books on time. We want our bulletin to come out just before the winter institutes begin, so that the copies can be distributed over the State with the list of

meetings. In some cases public-spirited individuals have applications on record in advance for fifty or a hundred of these bulletins, to be given out to their farmer friends and patrons. Thus there is a great advantage in having the bulletin out in ample time. Besides, the State will not include any advertising in any of its publications, and we want this advertising.

In some instances the attendance on our institutes has been such that we have had people faint, and have had the floors begin to go down, so that the people have been obliged to work out in order to avoid a stampede. But it is not always that way. Sometimes there is plenty of room. But by having a class of workers well known, including practical scientific farmers—and we do claim to have some scientific farmers in Wisconsin, not college men, either—we succeed in drawing out the people. After seventeen years of this class of work our meetings are now better attended than in the early days of this work, or even five or ten years ago.

At some of the smaller places, 20 or 30 miles from a railroad, we do not draw as large crowds on the average as we did ten years ago when we were holding meetings only at the county seats. We have no county system. County lines are not in a general way considered in placing our institutes. Ours is a State system. Competitive points in the State ask for these institutes by petition. We prepare a form of petition, assuming that every signer will take an active interest in advertising the institute and helping it in every way. These forms of petitions are asked for from different parts of the State, and are returned well filled with names. Business men take just as much interest in the organization of farmers' institutes in their particular localities as the farmers do. I know business men in our State who have paid as high as \$100 toward the expenses of the local farmers' institute.

In many of our institutes a premium is offered for the products of the farm and the farm home, so that some of the institutes become genuine fairs. I know of cases where over \$2,000 has been spent in a premium list; but as a rule the prizes will run from \$10 to \$100.

Part of our money is spent on the women's department. Last year we gave twenty-three cooking lessons. We employed two or three ladies, who talked at the general meeting, not at a special women's session. These ladies discussed some practical topics, such as dairying from a woman's standpoint, the rearing of poultry, home-making and other domestic subjects, such as we men folks like to hear the ladies talk about.

Mr. VOORHEES. Allow me to ask a question: When meetings are held during successive years in the same place, do you find the interest increase from year to year; and if so, is this due to the rearrangement of the programme so as to change the topics? In other words, how do you keep up the interest when meetings are held year after year at the same place?

Mr. MCKERROW. At this time we are not holding meetings five or six years in succession at any point in the State. That did take place in the first ten or twelve years of the work. Of course the programmes were rearranged. But quite often those very points where meetings had been held eight, nine, or ten times would ask as a special favor that such men as had been there before be sent again, and would sometimes ask that the same subjects be again discussed. The people seemed not to have had enough of it. But we are making a change in that respect, so as not to give an institute meeting at the same point more than two years in succession, though we have had plenty of cases where this has been asked for. Our aim in Wisconsin is not to have a large number of meetings but to make every meeting as strong as possible.

A DELEGATE. From what distances do people come by private conveyance to get to the meetings?

Mr. MCKERROW. As a rule we expect to gather our audience from a radius of about 7 or 8 miles, but some people drive 20 or 25 miles to attend the meetings.

Mr. CREELMAN. What percentage of the meetings are held in the same place for two consecutive years?

Mr. MCKERROW. I think the last four or five years the number has been 25 or 30 per cent.

Mr. CREELMAN. Do you keep up the interest in the work when you meet at a given place only once in two or three years?

Mr. MCKERROW. There is just the same interest as if the meetings were held every year. We are holding meetings this year at certain points which are probably 5, 6, 7, 8, or 10 miles distant from where meetings were held last year. We find that many of the farmers will drive long distances in order to take in two or three meetings. We are using five corps of workers, and we plan our work so that when meetings come within 15 or 20 miles of each other we have different corps of workers; and we so arrange the circuits that meetings which are held close together are not held at the same time.

ALASKA, HAWAII, PORTO RICO.

By A. C. TRUE, *Office of Experiment Stations, U. S. Department of Agriculture.*

As the list of States has been gone through with, I would like to be permitted to say a word about the work in regions which have not yet been referred to—Alaska, Hawaii, and Porto Rico.

As you know, we have already established agricultural experiment stations in Alaska, and although it has not been feasible to hold farmers' institutes there in a regular way, still we have made it a point, where our agents are going about through that vast territory, to have them come in personal contact with the people who are trying to promote agriculture there, so that the people who are working there in a small way to grow different things may have direct aid and encouragement in their efforts. I have reason to believe from what I hear that this item of work has been an important factor in our operations there. Through the personal visits of our agents in different parts of the Territory the people have been greatly encouraged to work in agricultural lines.

In Hawaii, as soon as the experiment station was established under the auspices of the Department, our agent in charge called a meeting of farmers and others interested in and near the town of Honolulu, and formed an association to be known as the Farmers' Institute of Hawaii, and officers were elected. There have already been held in the Territory of Hawaii under the direction of that association several successful farmers' institutes, and we hope to develop this work very greatly in the near future.

In Porto Rico the experiment station has just secured a permanent location near the town of Mayaguez, and there, as in Alaska, our agent has made it a point to get in personal touch with as many people of the island as possible. Now that our station is permanently located, we expect very soon to have a regular organization of farmers' institutes and to conduct meetings in both the English and the Spanish language in different parts of Porto Rico.

I may also add, to make the matter better comprehended, that the plans for the new bureau of agriculture in the Philippines, which will be established under the local government, through the Commission, include not only a number of experiment stations and demonstration farms, but also the holding of farmers' meetings or institutes in different regions in those islands, so that I feel sure that in the near future we shall have a system of farmers' institutes that will actually take in the entire United States.

A recess was taken until 8 p. m.

EVENING SESSION, TUESDAY, JUNE 24, 1902.

The convention was called to order by the president at 8 p. m., and the five-minute reports not previously presented were called for.

LOUISIANA.

By J. G. LEE, *Baton Rouge*.

The organization and arrangement of the farmers' institute work of Louisiana is under the control and direction of the State board of agriculture and immigration, and directly under the control of a board of institute managers consisting of the president of the State University and Agricultural and Mechanical College, the director of the experiment station of the State, and the commissioner of agriculture of the State, the commissioner of agriculture being, as I might say, the general director or superintendent. The people who do the work are selected from the professors of our agricultural and mechanical college and from the officers of the experiment station. The officers of the station are generally the institute conductors. In addition to these, local farmers and successful planters throughout the State are engaged in the work, and from time to time specialists from other States are brought in to help the work along.

As commissioner of agriculture, I had the honor of inaugurating the system of farmers' institutes in Louisiana. No appropriation whatever was available for the work at the beginning, but by voluntary effort on the part of our experiment station people and our agricultural college people we have undertaken and held a number of institutes since the year 1896—six years. At the first meeting of the legislature after that we managed to secure an appropriation of \$1,500 a year to carry on institute work. That appropriation has been increased the last two years to \$2,000, so that in our institute work we are now working on an annual appropriation of \$2,000.

Our institutes last generally one day. It is our hope that when the interest has developed sufficiently to justify it, and there is a demand for it, we shall hold sessions of two days or more.

There are two features of the work in Louisiana which we feel add greatly to the benefit resulting to the people. One of these is the organization of permanent farmers' institute clubs, if practicable, at points where we have held an institute, and the other is the organization of local agricultural fairs, which bring the people together in the fall of the year for the exhibition of the products of the farm, the orchard, the garden, the stable, etc. The State department of agriculture always contributes a small amount of money to the premium fund of these organizations, while the police juries contribute also to the expense of holding the fairs and paying premiums.

We think that a great deal of good is coming to our farmers through these local fair associations and through these local farmers' institute clubs. The work is growing in Louisiana. Last year we held 42 institutes in 38 parishes of the State. This year we shall be able to hold 45 or 46 institutes in about 42 parishes.

On account of local conditions in Louisiana, with which many of you are not familiar, it is almost impracticable to do successful institute work in many of our parishes (counties, as you call them). As a rule, we can not do successful institute work among the large sugar planters, the large rice planters, or the large cotton planters. It has been our aim, therefore, to extend our work as far as possible among the small farmers of the State—farmers owning their own small farms and doing their own work. These people appreciate the work of the institute, and they need that work.

I neglected to say that we have a secretary and stenographer accompanying

each institute corps. In this way the questions, answers, and general discussion resulting from the reading of each paper or the delivery of each lecture at the institute are taken down.

A DELEGATE. How many corps do you operate?

Mr. LEE. For the last two years we have operated three corps at the same time in different parts of the State. That was necessary on account of using in our work so many professors of the agricultural and mechanical college and the experiment station people. These persons are enabled to get away for our work during the holiday in August. Our farm work is generally closed up in July—at that time the crops are laid by—and August being an idle time for the farmers, it is considered a most convenient season for our institutes.

Returning to the subject of our reports, let me say that at the end of the institute season the best of the various papers which have been presented at the institutes, together with the discussions and the questions and answers following those papers, as stenographically reported, are published in a special bulletin—the farmers' institute bulletin—and distributed free to the farmers of the State to the number of from 7,000 to 10,000 copies. We began with the distribution of 3,000 copies.

The PRESIDENT. Are those publications sent out without solicitation or do the farmers apply for them?

Mr. LEE. In the office of the commissioner of agriculture at Baton Rouge we keep a list of the members of the clubs that I have mentioned, and among these the bulletins are distributed, the expense being paid out of a State appropriation.

I neglected to state that a great deal of the incidental expense connected with the institute work is borne by the board of agriculture. In this way we pay the expense of the stenographic reports and also the speakers whom we bring from other States or the notable men of our own State whom we employ to engage in this work. The services of our professors and experiment station people who engage in this institute work are entirely voluntary. They receive no compensation other than that received from the State. Their expenses, however, are paid.

A DELEGATE. Is the expense of publishing the bulletin paid out of State funds other than the regular appropriation?

Mr. LEE. If the appropriation for farmers' institutes is not sufficient, we supplement that from the general appropriation. The matter is entirely in the hands of the board of agriculture and the board of managers that I have mentioned.

MICHIGAN.

By L. R. TAFT, *Agricultural College.*

You know, perhaps, that some twenty-five years ago institutes were established in Michigan under the direction of the agricultural college. The funds allowed amounted to about \$300, and the faculty did all the work. This was kept up for some fifteen years. Since that time the State has made annual appropriations, increasing from about \$3,000 to \$7,500 for the last two years. Of this amount \$500 goes to reading circles. The college conducts what they call "farm home reading circles." This work is under the direction of Professor Smith. We have, in connection with the county institute, societies in every county where we have institutes. They have regular officers. And in addition to this we have township vice-presidents. In sections where we have one-day institutes the township vice-president where a meeting is to be held is called the local manager, and the county secretary arranges the institutes.

We have, of course, had to go outside the college faculty for our speakers. When the institute fund was increased we had to use at least half as many speakers from outside as we obtained from the faculty. Then in 1895 our terms were

rearranged. In our special courses it was impossible for the faculty to get away to do very much work, so that for the last six years fully three-fourths of the work has been done by farmers and other persons hired for the purpose. We have paid from \$3 a day to as high as \$4 and \$5 a day, besides expenses. We work them rather hard the last two or three days, from the fact that we have each week three two-day institutes. In many cases the speakers leave home on Saturday night and are away two Sundays.

The interest has increased for a number of years, especially in the one-day institutes. The figures, both for attendance and the number of institutes, show this increase.

For each of the past two years we have had 63 two-day institutes in as many counties, and in some counties they have been allowed to hold one-day institutes in places of their own choosing.

Allegan County has had 20 institutes for the last two years, and the State has furnished speakers for about 10 of them. Other counties have arranged to hold from 2 to 6 one-day institutes, and we have furnished each of these with one speaker. For the two-day institutes we furnish 3 speakers, 1 of them usually being a lady for the women's section. In regard to this section we have tried several plans. We leave it to the people of the county to determine whether they will have a women's section as part of the general session or whether the women shall have a section by themselves. We have found that in many cases they prefer that the women's section shall be a part of the general session. Where the hall was not large enough to accomodate all that came in the afternoon we have carried on the separate sections for women with very good results, but in many cases we have found it better, on account of limited hall space, to have the women in a convention by themselves, and then have all the attendants together in the evening.

The one-day institutes for the last year numbered 183, which is an increase of 42 over the previous year. The expenses have been paid from the institute fund, and we have had sufficient means left to print a report of 100 pages and also to pay the expenses for a general round-up at the close of the season. This has been held for the last two years at the college, and in order to insure the attendance of delegates (we prefer to have the secretaries as delegates) the sum of \$5 has been allowed toward the expenses of each delegate. We have been able to secure half rates on the railroads and reduced rates at the hotels. In many cases the expenses have been less than \$5.

We wish to have the delegates at the round-up in order to have a conference for talking over matters in relation to institute work, and, in fact, to arrange the work of the coming season. By that time they have mapped out the institute work for the season.

We always like to have delegates from three counties come together at the same time, and we are now trying to have six counties meet the same week, so that if necessary the speakers for the evening may go to one place one night and another place the next night, to save traveling expenses.

The attendance for the last year has been about 100,000. We have had actual accounts taken both by the secretary and by one of the State speakers at every institute, and we have reports for all the meetings except one. The total number at the two-day institutes has been about 55,840, making, with the one place for which we have not the figures, about 60,000. At the one-day institutes we have had 39,000—very nearly 40,000—in attendance, and the expenses have been kept separate, so that we know about the relative cost. For the two-day institutes, where we have had to pay salaries and traveling expenses, the cost for the past year has been practically \$3,000. The cost per unit of attendance has been about 5 cents. With the one place for which we have not the figures the cost, as we estimate, was a little less than 5 cents per person. For the one-day institute the

total cost has been in round numbers \$1,700, and the cost per unit of attendance has been 4½ cents. In these cases we have sent only one speaker, while to the other institutes we sent three. Frequently the speaker is entertained without expense. But we are safe in saying that the expense has been practically 5 cents per person for the two-day institutes and 4 cents per person at the one-day institutes.

I may say that we have found some weak points in our system. We hope to get ideas from others which will enable us to overcome these weak points. One of the difficulties arises from the fact that the officers, who are required to do a great deal of work, are unpaid. Hence, we have not in all cases secured the best service. We are considering whether we can in any way recompense them in part for the time and labor required. Another difficulty is that with this increased number of one-day institutes, which will probably number next year 200, if we are to carry out the present plan, we are short of speakers.

We find that it requires more care in choosing speakers for the one-day institutes than for the two-day institutes, from the fact that where there are two or three together one can help out another. When we send, for instance, a stockman to a county where they want to know about fruit, he is often at a loss to answer the questions that are put to him. A one-day institute needs an all-round man more than a two-day institute, and we have some trouble in picking out a sufficient number of good men for this purpose.

Regarding the strong points of the system, the fact that we have this local organization or county organization has helped us very much. It interests the people. We try to make it appear to be their institute, and we find that they talk about it and plan for it very much in advance. In some cases they have undertaken to secure exhibits of local products for the meetings, and this has caused more or less enthusiasm in regard to the meeting.

Another strong point is the number of persons that we have succeeded in reaching, in proportion to the expense incurred, by reason of the system that I have spoken of. By means of the one-day institute and the reduced expenses for travel, etc., we have been able to reach the 100,000 persons that I have mentioned.

One puzzling point has been in regard to the selection of farmers to speak at the meeting. One of the strong points in our system, I think, has been that persons selected to speak have been, as far as possible, visited for the inspection of their farm work without the object of the visitor being known. So far as possible, one of the professors will take occasion to visit every proposed speaker on his farm, and unless his work is found to be beyond the ordinary he is not invited as a speaker. This has a very good result at the institute, for when the speaker is known to be a successful farmer he is listened to with much more confidence than if he is suspected of being a "slouch."

Then, too, the local institutes have had a very good effect in acting as feeders for the county institutes. We like to have these local institutes scattered throughout the county, and if three or four weeks in advance of the meeting of the county institute that meeting is expected, the people become interested and are much more likely to attend than if the meeting were not thus talked of beforehand.

In conclusion, I might say that there has never been less criticism of the institute system than during the present year.

NEW JERSEY.

By E. B. VOORHEES, *New Brunswick*.

The institute work in New Jersey has been rather an evolution than anything else. It has been in progress for some thirty years, though our organization has

not been called by the name of farmers' institute until the last six or eight years. In fact, at the time the State accepted the land-grant fund there was incorporated in the bill a provision that the officers of the agricultural college should deliver at least one lecture in each county of the State every year. Shortly after that the State board of agriculture was organized, and under the central organization, which is located at the State capital, were county boards of agriculture. Following the organization of these county boards, the professors in the agricultural college went every year to the county boards and delivered lectures upon the matters which are now generally attended to by the institutes.

About 1892 we began what we called regular institute work; but it was carried out and conducted under the supervision of the board of agriculture, the executive committee of which had charge of the work of the institutes and tried to provide for directors and speakers and matters of that sort. The expenses connected with the work of the institutes in New Jersey are provided for by the annual appropriation made to the State board of agriculture. There is no special provision or appropriation for the institute work, and therefore, although we are a small State, the work has been limited in extent.

The institutes now held annually number about thirty or perhaps thirty-five. These are all in addition to the work which is done by the agricultural college in connection with the county boards of agriculture; that is, we have our 30 separate and distinct institutes, and in addition to that the professors in our agricultural college and the officers of the State board of agriculture attend the semiannual or quarterly meetings of the county boards of agriculture. If these meetings are added to the meetings provided for as institutes it means probably a doubling of the number of the farmers' institutes because of the similarity of the instruction afforded.

The expenses of the institutes range from \$1,000 to \$1,500, varying somewhat with the number of meetings and with the number of days assigned to institute work from year to year. Sometimes a certain locality will ask for two days and perhaps the next year will ask for one day, so that the amount appropriated by the board of agriculture is not uniform.

The professors of the agricultural college and the officers of the experiment station have always taken an active part in the institute work, and until recent years have done so without any compensation. But recently, because of the large number of evening meetings which are added to the day meetings, the professors have been allowed \$5 for each individual institute, and the evening sessions have been so arranged that the professors could attend them, and, if possible, get back to their regular day work at the college. In our small State of course this is largely practicable. The small sum which I have named has been allowed to cover extraordinary expenses, but this allowance for expenses is a recent innovation.

The director of the institutes, who is appointed by the executive committee of the State board, and has been the secretary, received no extra compensation for his services until recently, when he has been allowed \$5 for each meeting at which he makes an address.

It will be seen that the expenses of our work have not been very heavy, but the work has been growing in interest and usefulness, and the numbers in attendance have increased. In certain sections of the State, more especially the northern section, we have only a small attendance. On the average we have, I should say, about forty for each institute, although in a few places the attendance reaches two or three hundred.

Our plan has been to have the institutes associated in the different counties with the county organizations, making the latter responsible in part for the speakers and the attendance, and for the advertising and things of that sort. By reason

of the existence of the organized county boards it is quite easy for us to get into connection in each county with some organized body directly interested in the work, so that usually our institute is held in connection with the county board of agriculture or the special organization of the county. These local organizations are very glad to be connected with the institute work, and by means of the local organizations we can appeal to the people much more effectually than if we had not such aid.

Now let me speak for a moment in regard to the method in which the college professors and the experiment station workers assist us. We recognize this work as an educational movement, and we try to have the lectures from year to year consecutively and logically connected. For example, a professor going one year into a particular county and lecturing on the improvement of the soil will follow that up the next year by a lecture on fertilizers, and the next year by a lecture on the growing of particular crops, so that for persons who attend faithfully the lectures are really a course of instruction. By reason of this system of instruction we have now in certain sections of the State bodies of farmers who are very well educated in the principles which underlie the practice of agriculture.

Of course one important question arising in connection with our work is the relative usefulness of different speakers. We have always recognized the importance of having practical men; yet we want the practical man to have such a knowledge of the principles underlying his business as to enable him to teach the farmers the true connection between the principles and practice. We want the farmers, by means of this instruction, to see not only the facts, but the reasons for those facts. In other words, while we seek to have practical men as instructors, we want them to be trained and developed along the lines of science, for the man who does the best work in a practical way is the man who knows the reason for what he does. We undertake right along the line to make our work to the fullest possible extent educational.

In our State we are laboring under difficulties which perhaps are not found in what are called purely agricultural countries or States or counties. Our conditions are such as have a general tendency in one sense away from the farm. This is a distinct hindrance to the institute work. Then, again, because of our location, we are specialists in a certain sense, and that is a line along which we try to develop the industries of the farm. We aim, in other words, not at general farming, but at special and particular farming. So we are constantly trying to educate farmers who shall be specialists in particular lines. We endeavor to show the advantage of cultivating special crops and adopting special methods. This line of work has been taken hold of by the institutes in the last few years and with very great success. We can see that in certain sections of our State, because of the institutes and of the experiment stations, new lines of work have been taken up. For instance, in certain counties during the last five years our farmers have taken up especially the growing of asparagus. The farmers were not successful with the crops that they were growing, and the institute workers have said to them, "Your land is adapted for asparagus." Then we have brought to that county those who have grown asparagus especially, to teach them about the varieties and the soils and the fertilizers. In other sections we have undertaken to establish those industries which in that particular locality were likely to be most successful financially, and much more satisfactory from the standpoint of the development of the farmer than the lines of work in which he had been previously interested. We have undertaken to show the farmer that the general practice may not be the best practice for him in the particular locality, but that he should seek the special adaptation of his work to his conditions. In this respect we feel that progress has been made, notwithstanding the very many difficulties under which we have labored.

NORTH CAROLINA.

By S. L. PATTERSON, *Raleigh.*

In North Carolina the farmers' institute work has been going on for some twelve or fifteen years past with one or two intermissions; but I can not say that it has been very successful, considering the time over which it has extended. There are difficulties in the way there, and some of the addresses which have been made here have touched upon some of the difficulties that we feel in our State.

One of those difficulties is the limited time in which it seems to be practicable to hold our institutes. In our country it is not worth while to try to get the farmers out during the cotton season. I do not know that they are to be blamed for not coming out. I think that to begin about the last of January or the 1st of February and continue till about the 1st or 10th of March is about as much time as we can devote during the winter and early spring to this institute work. That is about the only season, as I have found, during which the farmers will come out at all to attend the meetings. Then, again, we lay by our crops later than they do, as has been stated here, in Louisiana. From about the last of July until the 1st of September is about the only time our farmers can attend these institutes other than during the winter and early spring. The two seasons I have named, embracing probably ten or twelve weeks, are about the only portions of the year for which we can with any certainty make appointments with the expectation of being met at those appointments by the representative farmers of the particular locality.

At one time our law required that the farmers' institutes be held in every county of the State at least once in every year, but that was found in many localities entirely impracticable, and so the law was changed. In our State we have 97 counties. With our limited time for institute work—ten or twelve weeks, and with only one force of workers—it takes a long time to get over a State of that size, visiting all the counties. In fact I have never yet been in all the counties, although I have been holding institutes or trying to hold them off and on for five or six years past.

Another difficulty is getting the farmers to appreciate the objects of the institute and inducing them to attend. I take great interest in hearing from you gentlemen who have been successful in this respect in your States. I want to learn how you succeed in interesting the farmers and inducing them to come out and attend the institutes. Right here I wish to ask my friend from Michigan [Mr. Taft] whether in his State they find the second day's attendance at the institute equal to that of the first day.

Mr. TAFT. I should say the attendance the second day is about double what it is the first.

Mr. PATTERSON. On the contrary with us, and that is one of our discouragements. Our meetings, though well attended the first day, often drop off on the second day.

Mr. MCKERROW. In Wisconsin we find our second day's meeting very much better attended than the first day's meeting.

Mr. PATTERSON. That certainly must be very encouraging to the institute workers.

But along with our discouragements we meet with some encouragement. For instance, in one county of our State, where I think we have had about four institutes during the last few years, and where we are preparing for another—for it is one of the best counties in the State, where there are some of our most intelligent citizens—we have been introducing of late a feature which has been found interesting, and which I think will increase the attendance on the part of the farmers. I refer to stereopticon views given at night by the State entomologist

and by one of the professors in our college. These views are found very interesting.

So far as concerns the general work of the institute and its value to the agricultural interests of the State, it is my judgment that if the farmers of a section can be induced to attend the institute, and if the institute is properly conducted, the institute system is really of more advantage as an educational factor in farming than the agricultural college.

OHIO.

By W. W. MILLER, *Columbus.*

The farmers' institute work in Ohio, as in other States that have reported, has grown from small beginnings. The Ohio State board of agriculture was organized in 1846. Soon after its organization some of its members advocated the holding of farmers' meetings, variously termed farmers' clubs and other names, at which the science of agriculture was discussed. These meetings were continued intermittently during a period of years until the professor of agriculture in the Ohio State university and the secretary of the State board of agriculture began the holding of meetings independently, without special appropriations and without special encouragement. Later on, in the early eighties, the State board of agriculture made an appropriation from its limited resources of \$1,000 per annum, and employed some speakers, besides obtaining the voluntary services of other speakers. The thousand dollars was used for the expenses of these meetings and for the payment of such speakers as had to receive remuneration. Subsequently this appropriation was increased to \$3,000 a year. The farmers' institutes gradually drew about them friends and supporters, so that in 1890 the general assembly of the State enacted a law authorizing the holding of farmers' institutes under the auspices of the State board of agriculture, and made provision for the expenses of those institutes. The provisions of our State in this respect are, I think, a little different from those of any other State of the Union. With us the expenses are borne by the counties, not by the State. There is a per capita allowance of 6 mills for institute purposes—not to exceed, however, \$250 in any one county. We have in our State eighty-eight counties; so that we receive in the aggregate \$16,700 in round numbers from this per capita allowance. Half of this is available for local expenses of farmers' institutes held under the auspices of the board; the other half goes directly to the board for the payment of its various expenses; so that we have \$8,300 or \$8,400. The various societies in the State have an equal amount. We vary somewhat in our methods. We are all addicted to our own peculiar manner of proceeding. We have local management, so far as is possible, with central control. The officers of the institutes are chosen by the societies, which are organized according to law and the rules of the State board of agriculture. They conduct the meeting, except that the speakers are provided and the dates and places for holding the meetings fixed by the central authority, which is, as you know, where the work is in the hands of a board, the executive officer of the board or its secretary.

We are now holding in Ohio from two to four regular institutes in each county, making 250 or 260 two-day meetings, in addition to the independent meetings, which are held by the same societies during the seasons or years in which the State does not give assistance. So that we have about 300 meetings in all.

We supply to those meetings two lecturers employed by the State board of agriculture, who are jointly responsible with the local officers for the proper conduct of the institute, so that nothing may be introduced that will be objectionable to the State speakers, supposing it possible that the local institutes would permit such a thing.

We employ at the present time as lecturers educated, cultivated, practical

farmers. In the early history of the work, and in fact until quite recently, we received most valuable assistance from the director of the experiment station and his staff, and from the professors of the college of agriculture in the Ohio State university. But their duties have become so arduous during recent years that they can not well take a specified assignment.

We are peculiar in this, that we must have a week's work if we have any; and we prefer having several weeks continuously. As the professors could not comply with this requirement, they are now devoting their time to helping out what we term our independent meetings, or those to which we do not supply speakers and which do not receive local aid, unless there should be a surplus from the fund after the regular institutes are held. In that case I issue an order enabling them to draw the residue, which sometimes is sufficient to pay their local expenses.

We have received most excellent assistance from our educated friends in the college and the station; but as I said before, they are now devoting their work to independent meetings and to supplementing our speakers as opportunity may arise. They can usually attend the Friday and Saturday meetings better than those on any other days of the week, and they do take part in that way considerably.

The greatest difficulty we have had to contend with in Ohio has been the centralization of power in the matter of fixing dates and assigning speakers. That difficulty, however, is fast disappearing. In fact, we have now no trouble in that respect worthy of mention. Indeed, we have not, perhaps, trouble, so to speak, at any time: but there has been a disposition to feel that arbitrary methods were used when not absolutely necessary.

The meetings are held. I should have said, in the three winter months, beginning as nearly as may be on the first of December and closing as near as may be on the first of March, with one week out for a State meeting, at which we expect the attendance of all institute workers and a goodly number of persons interested in institute work from different parts of the State.

So that we are having no difficulty now along any line except in the matter of providing buildings large enough to hold the people who want to attend the institutes. Our experience is, like that reported from Wisconsin and Michigan, that our second days are better days, with larger attendance, than the first days. If we ever have a small attendance it is on the forenoon of the first day. The meetings on the afternoon and evening of the first day and all the meetings of the second day are usually limited only by the size of the buildings.

Since I have had control of the work I have insisted that no two speakers should travel together for longer than one week at a time. I do this as a mercy to the speakers. I know that in some of the other States you have different methods. Some of your speakers travel together all winter. But we do not have men quite good enough for that, and I never allow two men to travel together more than one week, so that if a man works through the winter—that is, if he works twelve weeks—he works during that time with twelve different associates.

We have not in Ohio the possibility of devoting one man's time to the work. The work is in the hands of the secretary of the State board of agriculture, and he does not at any time visit the institutes, because he has not time to do so. He tries to keep his hands on the keyboard and to know what his institute lecturers are doing. He gets the reports from the lecturers, from the officers, and from various sources. He tries to keep in touch with the work and to have good work. Our work is growing and is better appreciated to-day than at any previous time.

A DELEGATE. What is the compensation of your speakers?

Mr. MILLER. The compensation of our speakers, like all other things, is brought down to rule. We do not employ any more than two speakers for any one meeting. We pay every man for the first year's work \$4 a day and expenses, and we pay everybody that we keep on our list after the first year \$5 a day.

I know some of you feel and some of our own people have said that some speak-

ers are worth a good deal more than that amount; but our board has been conservative in this matter and does not pay more than \$5 a day to anybody and no less than \$4 a day to anybody. We are experimenting with new speakers every year. Many of them never receive more than \$4 a day, because they are not reengaged; but if reengaged they go on the \$5 list.

WASHINGTON.

By W. J. SPILLMAN, *Bureau of Plant Industry, U. S. Department of Agriculture.*

The PRESIDENT. Prof. W. J. Spillman, Agrostologist of the United States Department of Agriculture, formerly of the Washington Experiment Station, has been asked to make the report from the State of Washington.

Mr. SPILLMAN. The remarks of a number of gentlemen who have spoken here to-night show that in their States farmers' institute work is well developed, but in the State of Washington we are at the beginning of our development in this respect. In our State there has never been any appropriation by the State legislature for farmers' institute work, because no such appropriation has been sought—at least not very vigorously. Although there has never been any organization of any kind with reference to our farmers' institute work, yet a number of farmers from Illinois and other Eastern States have said that our farmers' institute compared very favorably with those of Eastern States.

The farmers in the State of Washington have come mostly from the Eastern States. They represent that class of men who read, and they have been attracted to our State by what they have read in regard to its resources and possibilities.

These men, having learned of farmers' institutes in the East, began to request us at the agricultural college and the experiment station to come out and give them a farmers' institute. As we had no funds that could be used for this purpose, we offered to come and hold institutes and give them lectures provided they would pay our expenses. So at a number of meetings I have had the pleasure of seeing the hat passed around for my benefit. That sort of thing was not at all pleasant, and it frequently happened that we institute speakers paid our own expenses. As our State is 500 miles long, and we frequently have to travel 500 miles to an institute at a 4-cent rate, you will see that it has been no sinecure to be an institute conductor in that State. After awhile the college authorities provided the money to pay for expenses, provided the communities would meet the local expenses. When an institute is held in a given community that community is required to furnish a hall, to do the local advertising, and to entertain the speakers while in attendance at the institute—to provide them with board and lodging. Very frequently we are obliged to "board around," as the schoolmasters used to do in the olden times in New England, and in this way we have some interesting experiences.

Although there is in our State no organization of farmers' institute workers, no organized body for conducting the farmers' institutes, the law does require the State agricultural college and the experiment station to conduct farmers' institutes. This is named as one of their duties, and they have been doing it for a good many years.

One thing I have noticed, that none of you gentlemen have mentioned, is the interest that the railroads take in these institutes. In the States of Washington and Oregon some of the large railroad companies employ speakers to lecture to the farmers on agricultural topics. They even go farther than that; for instance, they import free of charge dairy cattle in order to encourage the dairy industry, and they do other things in the same direction. I myself have gone on institute trips at the expense of the railroad company, riding in a private car for that purpose. The railroad companies, out there in that new country, understand that the farmers' institute is an effort to develop the agricultural resources of the country,

and they are earnestly cooperating in that direction. The railroad men are hard-headed, practical men, and when they see the good result that is to come from this species of work, they want to encourage it. One railroad in Oregon and Washington has spent thousands of dollars in farmers' institute work—more than both the States put together. They pay a man, say, \$1,000 a year whose principal duty is to look after the farmers' institute. Another railroad has kept a man employed at \$100 a month; and through that man's exertions farming in one very rich section has been revolutionized. The farmers there had been growing grain and nothing else for about fifty years. I refer to the Willamette Valley in Oregon. He went down there and got the farmers excited, and as a result dairy cows doubled in price within less than a year, and now dairying has become a leading industry in that valley.

In the State of Washington we hold about 30 meetings a year. The average attendance would be perhaps 60, varying all the way from 25 to 600. Recently I accidentally hit upon a method of getting a crowd to attend the institute meetings. I held eight farmers' institutes, having an attendance of from 150 to 300. The way we got a crowd there was by announcing that we were going to distribute small packages of seed at the institute. The farmers came out by the hundreds.

Mr. MCKERROW. You could not get Wisconsin farmers out in that way.

Mr. SPILLMAN. The Wisconsin farmers may be wiser. In the western part of the United States, particularly in those sections that have recently been settled, the farmers do not know what they can grow. They have a fertile soil but do not know its resources, hence they will try anything new in the way of seed that you will recommend to them, and as a rule they have followed our recommendations in a very satisfactory manner.

When we began our farmers' institutes there were 2,000,000 acres of valuable agricultural land devoted to wheat growing. Three-fourths of this had never had any other crop; had been in wheat for fifteen to twenty years. As the result of our farmers' institute work there have been within the last six months probably 2,000 head of pure-bred beef cattle and some dairy cattle shipped into that country. There were 13 carloads that went out at one time to one county. When we began there was not an acre of tame grass of any kind in the county in which we began, except a little timothy in the lowlands. Now there are thousands of acres of grass in that county. By reason of the change in the system of farming, prosperity has been brought to a country which was in a pretty "hard fix" when the price of wheat went down to 18 cents a bushel.

REPORT OF THE TREASURER.

The report of the treasurer was submitted by G. C. Creelman, of Ontario, as follows:

Treasurer's statement.

RECEIPTS.

Balance from 1901	\$40.40
Annual dues:	
Maryland	5.00
Florida	5.00
Minnesota	5.00
Pennsylvania	5.00
Wisconsin	5.00
Ontario	5.00
Michigan	5.00
Indiana	5.00
Total	\$80.40

EXPENDITURES.

Expenses of the meeting in Buffalo, including stenographic report.	\$35.00
Express, 75 cents; telegraph, 50 cents; telephone, \$1.30	2.55
Typewriting, stationery, and postage during year	26.00
Programmes	10.50
Total	74.05
Balance on hand	6.35

On motion the report of the treasurer was adopted and ordered placed on file.

The president called upon President R. W. Silvester, of the Maryland Agricultural College, to address the convention.

ADDRESS OF R. W. SILVESTER.

MR. PRESIDENT, LADIES, AND GENTLEMEN: It is with very great pleasure that I find this convention of farmers' institute workers gathered here in our national capital, inasmuch as I fully realize that in this particular, as in every other, in counsel there is wisdom. It seems to me that it is not desirable that we should measure the comparative merits of the different agencies which are at work for the purpose of elevating the agricultural interests of the State. I feel that they are all working together for the same object, and will no doubt in the end reduce the whole line of instruction to a logical order.

As has been stated here this evening, the institute work in the United States of America to-day is something that can not be replaced by any other agency. It reaches a class of people that we can not expect to be reached by the agricultural college, the experiment station, or any other agency in existence. I am speaking with reference to the interests of the farmers—those who are actually at work in the field. As has been said by someone in discussing this matter, the farmers' institute is the missing link between the farmer on the one hand and the agricultural college and the experiment station on the other. I agree with that remark fully and completely.

Agricultural education is of comparatively recent development, and we must not expect too much in the way of results in the course of a very few years. The work of the agricultural college and the experiment station is not only an evolution, but a revolution. Twenty years ago—yes, ten years ago—yes, probably eight years ago, it was thought in the Maryland Agricultural College that a man who came there to give any information from a book should be absolutely excluded. Before a profession can be established in connection with any subject there must be a literature of that subject, and it must be reduced to a pedagogic form. This is absolutely necessary in the development of any other profession. The literature of this profession is established through our national organization here in Washington. This literature is coming to be reduced in a great measure to a pedagogic form, and we are realizing what agricultural education means.

The organization represented here to-night is an important factor in the development of agriculture. Judging from the ability shown in the discussions here, and from what I have heard and read of the progress of this work throughout the entire country, it will not be long before we see it placed on a proper footing.

You are here to-night from widely scattered sections of this Union, and as a representative of this particular locality I feel that I am authorized to welcome you to the national capital as also to the Maryland Agricultural College. We shall be most happy to see you there, and we sincerely trust you will pay us a visit. It is true that we can not show you such magnificent grounds and buildings as you have for your agricultural colleges in the West. We have had very insuffi-

cient means with which to work. Our State appropriates for its agricultural college the munificent sum of \$9,000 per annum. Hence we have been compelled to work in a very small way. But I am glad to say that our State is becoming a little more liberal. Our director of farmers' institutes commenced on \$3,000 a year. His work was so good and it claimed such appreciation on the part of the people of the State that he is now receiving \$4,000, and we believe that in a very short time—probably at the very next session of the legislature—he will reach the consummation of his hopes in an appropriation of \$5,000. As our work progresses we expect to do something in keeping with the magnificent agricultural interests of this country. It will give me pleasure to receive you all at our college, but I warn you that you must not expect to find there anything in the way of buildings, appliances, etc., to compare with what you have out in Ohio, Illinois, Michigan, Wisconsin, or Washington State.

I thank you all very much for the warmth of the reception you have given me, and I trust sincerely that during your stay here you will give me the pleasure of meeting you at the Maryland Agricultural College.

MORNING SESSION, WEDNESDAY, JUNE 25, 1902.

The convention assembled at 9 a. m. The morning was devoted to discussion of the following subjects: "The farmers' institute worker" (see page 59); "The farmers' institute as a factor in creating a desire for an agricultural education" (see page 68), and "The farmers' institute as a promoter of closer intimacy between farmers and experiment stations" (see page 78).

At 12.30 p. m. the convention took a recess until 8 p. m.

EVENING SESSION, WEDNESDAY, JUNE 25, 1902.

At this session the following topics were discussed: "Teaching agriculture in the public schools" (see page 84), and "How may the farmers' organizations hasten the teaching of agriculture in the public schools" (see page 89).

The Honorable Secretary of Agriculture was introduced and spoke as follows:

ADDRESS OF HON. JAMES WILSON.

MR. PRESIDENT AND GENTLEMEN: I did not jot anything down on paper to bring before you to-night. My head is chock full of these things all the while, and I think I will just talk about what suggests itself to my mind.

Some years ago the people who handled tobacco wanted the Department to tell them something about tobacco growing in certain localities and how to produce certain kinds. The question became an interesting one. I began to look into it. We sell nearly \$30,000,000 worth of tobacco every year, most of it very cheap and poor, and we buy \$14,000,000 worth of the finest tobacco in the world. Some of our people are able to make very valuable cigars. I remember hearing of a Cuban down in Florida who was supposed to know something of the A B C of tobacco. I went to Florida to find out all about the matter and I found that the people there who were supposed to know all about this subject did not know anything but what their fathers had known, and their fathers did not know anything but what their grandfathers had told them.

Then I called on the scientists of our Department and said: "Gentlemen, have any of you an answer to the question why one cigar sells for 2 cents and another for 50 cents?" The answer was "No." I said: "The dairymen have determined what it is that flavors butter and what it is that ripens the cheese. Now what is it that flavors tobacco, do you suppose?" The answer was, "We do not know;

we have not gone into that question." I said: "Let us go into it." So our people went into it. They found that the bacteria that flavor butter do not flavor cigars; that in tobacco there is no such thing as bacteria; bacteria can not live there. We made further inquiry. We wanted a man who could take the leaf of the tobacco plant, analyze it, and tell us what it contained. We got a German scientist who had just come to this country. Dr. Babcock, of Wisconsin, had discovered that the principle which ripens cheese is a ferment found in the milk; this man discovered that the principle which is instrumental in curing tobacco is a ferment. Well, we had made so much progress. About that time along came the Japanese Government and offered this man \$7,000 a year and took him to Japan. So my work stopped then and there with regard to the investigation of the tobacco leaf.

Then I called on the great universities of the country. We are a great educational people; you must always remember that. If you look at your taxes you will find about half the money goes for education. I wanted a chemist to come and analyze the tobacco leaf and tell me what it contains. Do you suppose I could find one? No, of course not. There has not been any education of that kind carried on for the benefit of the farmers. Of course not. I undertook to bring over from Johns Hopkins some man who could analyze the tobacco leaf. Did I get such a one? Of course not. Johns Hopkins does not do that kind of business. Johns Hopkins teaches animal pathology, but not plant pathology. We took some of those doctors of chemistry, with the degree from Johns Hopkins, and put them under our plant physiologists and pathologists, so that they might learn something about the chemistry of a tobacco leaf. And we are still waiting; we are just holding right on.

We have shown the people of the Connecticut Valley how to grow \$6,000,000 worth of wrapper tobacco that we formerly got from the Dutch who live in Sumatra; but we have not been able to show anybody how to grow \$8,000,000 worth of fine tobacco such as we get mostly from Cuba. We are at work along those lines.

We had our physicists go to work to find out what we wanted to know. We could find soil similar to the fine Cuban soil where the tobacco grows. I wanted a soil physicist. I hunted all over America. I thought that one whom we found in Wisconsin, Professor King, might come over here.

We found it necessary to educate our own people along those lines. We have found a place in Pennsylvania where the soil looks like the fine soil of Cuba, and we are trying whether we can grow fine tobacco there so as to save Uncle Sam \$8,000,000 that he is now paying out for that fine Cuban tobacco. We found another place in Ohio, another in Texas, another in North Carolina, with a fine soil that we suppose might raise this fine tobacco. We are trying the experiment there. We are going to work away and try to educate somebody that can analyze the juices of the tobacco leaf, so that finally we may save Uncle Sam a great amount of money that he is now spending abroad for foreign tobacco. We received three cigars the other day from the Texas Experiment Station. In a great many regards they are as fine as the Cuban cigar, but they are a little too strong. We must experiment all along the line down there. We must try whether we can not get a milder cigar. Why are those cigars from Texas so strong? I do not know. No chemist can tell me, because there is no chemist who can analyze the juices of that cigar and tell me why it is a little too strong. Perhaps the cause is one, two, three, four, or a half dozen ferments in there. But we do not know why there happens to be more ferment in one leaf than another.

The farther you pursue these investigations the more the wilderness stretches out before you, presenting things that we never saw nor heard of.

The object of this rambling talk is to show you how far we are behind in education. We have the old-fashioned "Old Country" education over here. We have borrowed the most of it. It was invented and organized long ago. The object of a college in old times was to train preachers. Now they have enlarged the scope of the college, and they educate men for what we understand to-day as the professions, such as the lawyer, the doctor, the dentist, etc. Men spend immense sums of money for education along those lines. We have more professionals than we have jobs for; and the fellow who acts as brakeman on a railroad gets more money on the average than the professional that has been educated in some of those fine colleges.

Now we find it necessary when we take up this work in our department to educate men to do the work; otherwise it can not be done. We have found this an absolute necessity. We have a large number of young men and women now being trained in the Department of Agriculture simply because the colleges and the universities are not giving the kind of education that we require.

You remember that the farmers organized themselves into societies known as "granges;" and they brought to bear their influence upon Congress to induce it to give us a grant of land to establish agricultural colleges. Well, we got that grant. Each State received 40,000 acres of land or the equivalent, and from the proceeds of that land-grant colleges have been established. It did not occur to us then that we had anything more to do. We assumed that if we only got the colleges established, teachers would be educated for agriculture all along the line. We know now how few teachers this country has; how very few teachers there are anywhere.

Some of those colleges have done grand work, as they happened to have grand men or women in them. Some of them had boards of trustees or faculties who, while they would not break the laws either of God or man, had no hesitation at all in taking the money given by Congress for the education of the farmer and applying it to the education of anybody else who wanted to be educated in any other direction.

Now, you can not educate a man in all the sciences that relate to agriculture if you wait until he has gone through the primary school and the secondary school and the grammar school. The college that is to educate a man must go to work and educate him in the sciences relating to agriculture all along the line. What a pretense to undertake to educate him in all these things after he has graduated in some college! Humbug! It never has been done. You must begin with the child and educate him for his future life work.

As a general proposition, the young man will not go to college unless you put on the shelf some goods that he wants to buy. Should a young farmer go to college and study Greek? For what purpose? Do you see anybody, after he has been through a college or a university, using Greek or Latin anywhere?

Now, those classical lines of education have my admiration as training for the men for whom they are designed. I do not stand here to oppose any kind of education under the sun. But that kind of education is of little use to the farmer.

We have a pernicious idea abroad in the land that you must first give a man a "general education," an education which shall be broad, an education which shall include the classical languages and mathematics and philosophy; and after you have graduated him from a college at which he has studied all these things, you have then, as is supposed, a foundation upon which you can establish a superstructure in any direction you want.

The farmer's boy who intends to be a farmer, and his father who intends to have the son succeed him on the farm, do not care anything about that kind of education. My idea of education is that it should fit a young man for his future life. If he is to be a physician, let him be fitted for that; if a minister of the

gospel, let him be fitted for that, and if he is to be a farmer, let him be fitted for that.

Now, you must begin to educate the farmer when he is but a child, and the question is how? I was over to the State of Missouri the other day; I attended a commencement there. I found that they have taken there what I believe to be the right course. They send for the school-teachers in the summer time and instruct them in the summer school how to teach agriculture in the primary schools. The State of Alabama gives \$2,500 a year for an agricultural school in each Congressional district in the State. I tell you, gentlemen from the North, you had better look out, or our brethren from the South will get away with you along those lines.

And I would not educate those school-teachers at their own expense; I would educate them at the expense of the State, my object being that, beginning with the child, they should instruct him in the rudiments of agriculture, in the elements of the science of agriculture. The children should be educated to know the difference between a grass and a legume. You can teach those young people by means of plants planted in the school grounds if necessary. You can have each one bring you a plant, and when it is brought you can tell him about it. If a field has been harrowed, let them run over it; and the next morning they will see where the moisture has collected in the footprints they have made on the ground. And then you can tell them why. You can lead them step by step from such beginnings to the use of the roller and the harrow.

I would begin with those young people along that line; I would continue this kind of education through the secondary school; I would prepare them for the agricultural college, and they would go there as naturally as a boy goes to the pantry to get some bread and butter with sugar on it. But just now our system of education draws the young people away from the agricultural college into something else.

And the mothers, God bless them, they probably have to work pretty hard on the farms, and they really do not want to see their boys become farmers. The mother would rather see her son wear a black coat like the lawyer and the teacher and the dentist. I do not think the mother encourages the boys very much to become farmers, and I do not know that the family preacher encourages them much, because he was not educated that way; and I do not think the family doctor gives them much encouragement for the same reason.

Our common-school system is the finest the world ever saw; but there are millions of dollars expended just now in technological schools. I was reading yesterday that Germany has 145 chambers of commerce, and 112 of those are paying money regularly to educate young men in commerce. That is how you make great commercial men. The American people are extending education in similar directions.

One day while away off on the Pacific coast I was waiting for a train. Somebody said: "Won't you step into the car and see how the railroad men are educated?" There was a man going from place to place with a car instructing the railroad men in everything pertaining to their business. So, too, are manufacturers taking hold of the work of technological training. Everybody is being educated in his peculiar branch except the farmer; and why should not he be?

What progress are we making along those lines? Can we take encouragement from what is being done? I think so. The demand is very great. The Province of Victoria in Australia sent a man here last summer and offered two chiefs of bureaus in the Department of Agriculture \$10,000 apiece to go out there and organize agriculture in that province, but neither of them would go. Just now I have three places in my mind for which we want men to take charge of

branches of work in the agricultural colleges, and I do not know where to put my finger on the right men. It is a big responsibility to send a young man off to one of the States to organize this work, and it is difficult to get men for the work, because they are offered bigger pay from other sources.

You can not get a man who is well up in animal husbandry or agrostology, or any of those sciences that a young man must learn to be an intelligent farmer, for the same pay for which you could get a man to teach anything else. You can telegraph to a large city and immediately get by the carload young men educated the old way, but you may send all over the country to get one man to carry on agricultural instruction with regard to animal husbandry or with regard to the different qualities of soil and you can not find one. Education along these lines has begun lately. We have not been at it very long.

One thing that should be encouraged is the work that is being done by the American Congress. Congress endowed the American agricultural colleges. It has gone further and given \$25,000 a year to each of them. Then it gave each of them \$15,000 a year to establish an experiment station. The Department of Agriculture is getting over \$5,000,000 a year now to help the farmer all along the line.

The question is coming upon us, now that we are opening the Orient, whether the Chinaman may not produce things so much cheaper than we can produce them that we had better never have opened it up at all; better have kept away from China.

One of our American citizens, on coming back from China, told us of his visit to Canton. He told us that he spoke there to an intelligent body of Chinamen through an interpreter. He stated the amount of work that a man could do in a Chinese rice field in a day. That they understood, because they saw it done every day. Then he told them of the amount of work that one man with machinery did along the Gulf coast of the United States, and that they could not comprehend. He told them that one American, with the aid of machinery and other modern appliances, can do as much in the rice fields in a day as 400 Chinamen. That they could not comprehend. These are the lines along which we want to educate. We want to give more power to the American farmer all along the line.

You have noticed that there has been a long "tussle" in Congress about beet sugar. I am not going to discuss the political aspect of that question, but let me tell you some things. Our farmers need to be taught how to cultivate the beet; they do not yet know how. If our sugar-beet growers should grow only the third of a possible crop, it would not make a bit of difference to them what Congress did: not a particle.

Have you watched the proceedings of our American Congress in the last week? Do you notice two great subjects that they are dealing with? One is the irrigation bill; another is the Appalachian forest reserve bill. Both have reference to utilizing the rainfall; both have reference to the securing of moisture for the soil. I believe firmly from all that I can learn that the atmosphere takes up just the same amount of moisture from lakes and river and ocean that it ever did. "God hath made man upright, but they have sought out many inventions." We have been here between the rainfall and the river. We have been changing the face of the Continent. We have been cutting down the forests, and doing it as fast as we could. The timber that we have in the Northwest is being cut into lumber by 700 sawmills just as fast as it can be, some of them at the rate of 100,000 feet a day. Our people west of the hundredth meridian are complaining that they have not enough moisture to grow crops. The people in the States of Illinois and Iowa have 35 inches of rainfall, and they are wonderfully blessed. The people on the Gulf coast have a rainfall running from 50 to 60 inches, and the people of the North think that they are wonderfully blessed. But you hear just as much complaint from the man that grows cotton in the South as from the man who grows wheat

along or near the one hundredth meridian. Now, why is all this? What is the matter? Our good friends in the South have been cultivating and cultivating and cultivating. They have been burning up the humus from the Southern soil; they have kept at it for over a hundred years until there is not much left now. It will not stand drought any longer because there is not organic matter in the soil to retain the moisture.

Now, let us leave the South and go out to the hundredth meridian again. They have a deep, rich, brown soil which, with proper moisture, can grow anything—great big crops. But whenever there comes a dry year it means calamity for them.

Now, what is the matter in the South? Is it the soil or the people? What is the matter at the one hundredth meridian? Is it the soil or the people? The soil of the South has been washed into her great rivers. Half the water in their rivers is mud; thus they are carrying away the soil, because the farmers are not educated to conserve that moisture.

Now, go back to the one hundredth meridian. There are not any rivers to carry away anything; consequently plant food stays there. If you can get the necessary water upon the soil, you can grow the most enormous crops. I have seen 80 bushels of wheat to an acre; I have seen a thousand bushels of potatoes to an acre, growing there. They have never lost a particle of their plant food from their soil. There is no water to carry it away.

There are two problems—one down on the Gulf coast among our Southern brethren; another up at the one hundredth meridian, this side of the Rocky Mountains, with our brethren of the plains. Each has a problem. The Department of Agriculture is hunting the world over to find plants to suit the South and to find plants to suit the great Northwest.

We have been paying \$8,000,000 a year for macaroni to the Italians, and it is not over nice to look at or think about. Macaroni wheat will not make good bread, and bread wheat will not make macaroni. We have sent our explorers all over the European and Asiatic world, and among other things they have brought us macaroni wheat, and we have it growing all the way from North Dakota to Texas. They grew some 200,000 bushels of it last year. Some people in Cleveland, Ohio, went to work and built a mill to make macaroni, and the excellent macaroni they did make. But the farmers, who had planted 185,000 bushels of the wheat, would not sell it to the millers. And the millers undertook to bring pressure upon me through their Congressmen to have me get more macaroni wheat seed. I told them if they would only wait until thrashing time they would get all they wanted.

The result of our raising our own macaroni wheat is that we shall save \$8,000,000 that we have heretofore sent abroad for the purchase of macaroni; and we shall eat the macaroni with much better relish; at least I shall.

These are the lines along which education is needed; and I think that the Missouri brethren are on the right track. Begin with the child; start the child in the rudiments that relate to agriculture and carry him on up to the agricultural college. Already in regard to education our farmers are taking the lead of farmers everywhere in the world, because the average American, going through our average schools and reading our American books and newspapers, is really the best informed average man that the world has to-day. In this matter we are going ahead remarkably fast. The Government is helping the people along these lines. We have people all over the world finding out things that we want to know. Let me illustrate how some of our people are hunting for things. We sent one of our agricultural explorers across Tripoli and across part of the Sahara Desert some years ago, and he got some big date palms. We had them transported to Arizona. Then we wanted an earlier variety of the date palm. So

our explorer goes up along the shore of the Persian Gulf to where there is an earlier variety.

Four years ago we were producing only 25 per cent of the rice that we consumed in the United States. The cry came up from the people along the Gulf coast "Our rice is a long, thin, carbonaceous sort of rice which does not turn out as we would like in thrashing; can you find us a better species of rice somewhere?" We sent one of their people off to Japan; and he found a flinty rice, shaped a good deal like wheat, and one that doesn't break up in thrashing. We brought over 10 tons and started it all over the Gulf coast; and the next year we raised 100 tons of it in this country. The crop that is now growing will supply all the home demand for rice; so that we shall not have to buy rice from abroad any more; on the contrary, we shall begin to export rice. The people down in Porto Rico are now buying our broken rice that we used to sell to the breweries. It just exactly suits them. It is a Godsend to them. They have not been getting quite enough rice of any kind.

Let me give still another illustration of the work which the scientist has to do to-day, and how he does it—which the world knows little about. The people on the sea islands off Charleston sent up word to us that the cotton was dying. They grow a fine long cotton there. We sent a pathologist down there and told him to find out what was the matter. He came back and told us that there was a fungus that attacked the roots of the cotton away down below the surface of the earth. He did not know what to do about it. A consultation of scientists was had, and he was sent back with these instructions: "If you find in that field one plant that did not die, save the seed of that. Then take some of all the varieties of cotton that grow in the United States and plant them there. Some may be immune. Crossbreed all these varieties. You may get a variety that may be immune. Stay there quietly pursuing your investigations for four years."

While this line of investigation was going on we discovered that they have in Michigan a certain form of peach disease. The peach falls off when it is half grown. The people did not know what was the matter. Our Department men last fall got a hint from the fungus which had been found at the root of the cotton plant. They found a similar fungus at the root of the Michigan peach. Now, we propose to import some specimens of the peach from its original home in Asia. The peach there has stayed healthy all along the centuries. We are going to try if we can meet the difficulty in Michigan by introducing that Asiatic peach.

One of our latest developments is the raising of green tea in South Carolina. It is only a question of time when we shall be raising our own tea. Green tea is usually artificially colored by the use of either prussian blue or copperas. Our people have been studying how to retain the greenness of the leaf without using any of these poisonous chemicals. Taking a hint from our investigations in regard to tobacco, we have found that the tea leaf has a ferment within it, and when you pull the leaf it associates itself with the oxygen of the atmosphere, and there you have green tea. Then they subject the green leaf to heat up to a high temperature to kill that ferment, so that it can not associate itself with the oxygen. Then they did not know how to get that nice gray shade which is on green tea. They obtained the services of a Chinaman, to whom they gave big pay. He did the work all right, but he did not let them see how it was done, and he would not tell them. But they discovered that the effect was produced by abrasion, and now they are making a very pretty green tea. Hence, I say, it is only a question of time when we shall grow in this country our own tea. We are now making tea which is finer than any that can be imported. There are imported teas that sell for as much as \$1 an ounce. I am going to get the society ladies here in Washington to hold teas in the afternoon at which this American tea will be served. I am sure that they will do it if they have a tea that costs more than anybody

else's tea! In this way we propose to avail ourselves of the services of the good ladies of Washington to disseminate the fine tea raised in the Southern part of this country.

The question naturally suggests itself, are you going to succeed in raising American tea without a protective tariff? I answer, yes. I do not want to bother Congress about a tariff on tea. American ingenuity will find some means of making one man do the work that it requires two or three hundred of those Orientals to do. I do not undertake to say anything in regard to the social problems of the South; but I do know that the little colored boys and girls down there can be much better employed picking tea than running idle. By American ingenuity we shall in some way solve the problem of competing with the cheap labor of the Orient. The American will improve anything he looks at; he does not look at a thing twice without suggesting an improvement.

Let me add that some day we shall be growing our own raw silk. Congress might well appropriate some money for assisting in this work. Besides the manufactured or finished silk that we import, we are now paying \$50,000,000 a year for the raw silk. I have arranged to have millions of mulberry trees sent all over the South. In a couple of years those trees will be ready to yield their leaves, and then I shall go to Booker Washington and have him teach the colored women to do the rolling. It will be very interesting to see them engaged at this kind of work, and as they sing "the Suwanee River," we shall see their fingers flying so fast that we can not follow them. I am interested in those people and I want to help them along.

Papers on "Teaching domestic science in the rural districts" were then read by Miss S. Evelyn Breed, of Norfolk, Va., and Miss Emma S. Jacobs, of Washington, D. C. (See pages 91 and 96).

APPOINTMENT OF COMMITTEES.

On motion, duly seconded, it was

Resolved, That the chair appoint three committees—a committee on nomination of officers, a committee on credentials, and a committee on resolutions.

The president announced the appointment of the following committees:

Committee on nominations—George McKerrow, Madison, Wis.; W. W. Miller, Columbus, Ohio; J. G. Lee, Baton Rouge, La.

Committee on constitution—G. C. Creelman, Toronto, Canada; John Hamilton, Harrisburg, Pa.; W. C. Latta, Lafayette, Ind.

Committee on resolutions—S. L. Patterson, Raleigh, N. C.; C. A. Cary, Auburn, Ala.; L. R. Taft, Agricultural College, Michigan.

MORNING SESSION, THURSDAY, JUNE 26, 1902.

The convention met pursuant to order.

Mr. McKerrow presented the report of the committee on credentials, which was read by the secretary.

ELECTION OF OFFICERS.

Mr. McKerrow, from the committee on nominations, submitted the following report:

For president, W. C. Latta, of Lafayette, Indiana.

For vice-president, J. G. Lee, of Baton Rouge, La.

For secretary-treasurer, G. C. Creelman, of Toronto, Ontario.

For members of the executive committee: S. L. Patterson, of North Carolina; A. B. Hostetter, of Illinois, and A. L. Martin, of Pennsylvania.

On motion of Mr. Hostetter, the secretary was instructed to cast the ballot of the convention for the officers nominated.

PLACE OF NEXT MEETING.

The PRESIDENT. We will now take up the question of the place of the next meeting of the convention.

A telegraphic dispatch was read from N. J. Sanders, president of the New Orleans Progressive Union, composed of 1,500 representative business men of New Orleans, asking that that city be selected as the place of the next meeting of the convention.

Mr. Lee nominated New Orleans as the place of meeting and made remarks in favor of the nomination.

Mr. Creelman nominated Toronto and spoke in favor of the nomination.

After considerable discussion Mr. Lee withdrew the nomination of New Orleans and moved that Toronto be selected by acclamation.

The motion, having been seconded, was agreed to.

The convention then discussed the subject of "The farmers' institute as a medium for developing the mutual interest and relations of farmers and the United States Department of Agriculture" (see p. ——).

After this discussion the following resolutions were offered and adopted:

By Mr. THOMPSON, of West Virginia:

"*Resolved*. That the association request that the Department will kindly continue to publish the report of our proceedings, as it has done heretofore."

By Mr. MILLER, of Ohio:

"*Resolved*, That the American Association of Farmers' Institute Workers cordially and most heartily approves the action that has been initiated by the Secretary of Agriculture in the matter of closer communication between the Department and the farmers' institutes, with the hope that an agent will be appointed, as suggested in Dr. True's paper."

REVISION OF THE CONSTITUTION.

The PRESIDENT. It is now in order to receive the report of the committee on the revision of the constitution.

Mr. CREELMAN. The committee on the revision of the constitution beg leave to recommend in the first place an amendment to Article III. That article now reads:

" MEMBERSHIP.

"Any active worker in the farmers' institutes in the United States and Canada may become a regular member of this association on payment of the annual dues, and is entitled to one vote. A delegate member representing the State Farmers' Institute organization shall be admitted from each State and Province on compliance with the by-laws, and shall be entitled to cast five votes on any question: *Provided*, That the annual membership dues of the person shall be \$1 and that of the State \$5."

To this article we beg leave to recommend an addition to this effect:

"Also, the United States Department of Agriculture and the Office of Experiment Stations of that Department shall each be entitled to representation in the association, with the full privileges of delegate membership."

We propose also an amendment to Article VII, which reads now as follows:

"Article VII. Associate members of this organization may be elected from time to time upon the presentation of their names by some member of the association, and upon their receiving the votes of at least two-thirds of the members present."

We have never taken advantage of this article of the constitution to elect any member, from the fact that immediately following it, in article 8, we read:

"The annual dues of an associate member shall be \$1."

As far as I can find out from members of the original committee who drafted the constitution of this association, it was intended that in a sense this article should be made to include prominent men interested in agriculture, but who were not necessarily active farmers' institute workers, and that when specialists in agriculture came to our meetings with scientific or other well-prepared papers of an original character, they should be given a recognized standing in the association for the services thus rendered and in recognition of those services. The committee therefore recommends that there be substituted for the words "associate members" the words "honorary members," so that Article VII will then read:

"HONORARY MEMBERS.

"VII. Honorary members of this organization may be elected from time to time upon the presentation of their names by some member of the association, and upon their receiving the votes of at least two-thirds of the members present."

Then we propose to strike out entirely in Article VIII these words:

"DUES OF ASSOCIATE MEMBERS.

"The annual dues of an associate member shall be \$1."

Article IX we ask you to amend by changing the word "associate" to "honorary." The article as amended will read:

"POWER OF HONORARY MEMBERS.

"Honorary members shall be entitled to sit in all the sessions of the association and to take part in all discussions, but shall have no vote."

It will be understood that we are simply proposing an arrangement for the election of honorary members who render certain services to the association, but who are not necessarily actively engaged in institute work.

According to the last clause in the constitution, it is necessary that we give one year's notice before a change shall be made in the constitution. As chairman of the committee on the constitution, I beg leave to submit this report, and ask that these changes be accepted by the association with a view to their adoption one year from this date.

Mr. MCKERROW. I move that the recommendations of this committee be accepted.

The motion, having been seconded, was agreed to.

Mr. MCKERROW. I suggest, if there are plenty of funds in the treasury, that the secretary have the proposed changes, with the original, printed and distributed to the different managers of institutes in the different States, so that they may be informed in regard to these proposed changes before they come up for action in the next convention.

Mr. THOMPSON. I suggest that the gentleman from Wisconsin (Mr. McKerrow) modify his proposition so as to ask that the proposed changes be printed in the proceedings of this convention. Then they will be distributed to all the members.

Mr. MCKERROW. I modify my motion in that way.

Mr. TRUE. There is no difficulty in doing both things. The proposed amendments can be published in the proceedings, and can also be sent out on separate slips.

The PRESIDENT. The chair understands that it will not be necessary to take a vote on this proposition; that the course suggested will be taken in connection with the publication of the proceedings.

A paper on "The relation of railroads to agriculture," by M. V. Richards, industrial agent of the Southern Railway Company, Washington, D. C., was presented. (See page 107.)

REPORT OF COMMITTEE ON RESOLUTIONS.

The president called on S. L. Patterson, chairman, for the report of the committee on resolutions.

Mr. PATTERSON. A resolution has been handed in to the committee, which I wish to read:

"Whereas this association has been informed that the authorities in charge of the exposition to be held in St. Louis in 1904 have been requested to make an effort to secure demonstration fields where all kinds of agricultural implements on exhibition at the exposition may be shown in operation: Therefore be it

"Resolved, That the American Association of Farmers' Institute Workers considers this a matter of great interest and importance to all persons interested in agriculture, and that they heartily commend this movement, with the hope that the exposition authorities may be able to arrange for such demonstration exhibits."

This is a resolution that comes from Major Lee and Professor Dodson, of Louisiana. I think they originated the idea, and it is one in regard to which Major Lee has had some correspondence with other parties. At his suggestion I wrote to President Francis approving the proposition. The letter was referred to the appropriate officer in charge—I do not remember now his name, but I believe it was Mr. Skiff—and he seemed to be impressed with the idea, and said that he would be very glad to arrange for such an exhibition of machinery actually in operation if it should be found feasible to do so. We think it would be well for this convention to take notice of the idea and present this resolution to Mr. Skiff.

Continuing, Mr. Patterson read the following resolution:

"Be it resolved, That the thanks of the American Association of Farmers' Institute Workers be extended—

"I. To President Roosevelt for his cordial reception of its members.

"II. To Secretary Wilson for his support and his instructive and interesting speech.

"III. To the Department of Agriculture for furnishing a stenographer and printing our official report.

"IV. To Assistant Secretary Brigham and Director True for their active and personal work in our meeting.

"V. To Prof. C. C. James, of Toronto, for his most interesting and instructive paper on 'Teaching agriculture in public schools.'

"VI. To Miss S. Evelyn Breed, of Norfolk, Va., and Miss Emma S. Jacobs, of Washington, D. C., for their valuable papers on 'Teaching domestic science in rural districts.'

"VII. To the proprietors of the National Hotel for the use of the room in which the meetings have been held and for other courtesies.

"VIII. To the newspapers of Washington for the interest manifested in our proceedings and for the reports published.

"S. L. PATTERSON, *Chairman.*

"C. A. CARY.

"L. R. TAFT."

Mr. MCKERROW. I move the adoption of the report of the committee.

Mr. PATTERSON. I want to say only one word in regard to the resolutions submitted. While it is generally the case that some formal resolutions of this kind are submitted on occasions of this sort, I wish to say that we have never had occasion to submit resolutions that have been offered with more earnestness and sincerity than these. They are not a mere matter of form. I am sure that I speak for this whole convention when I say that our meeting here has been one not only exceedingly agreeable to the members, but I believe of importance and

great helpfulness to us all. We especially appreciate the courtesies which have been extended to us by the Department of Agriculture and by all the officers connected therewith and by the other parties named in the resolution—in fact, by everybody here in the city of Washington. I am sure that this meeting will be to us all a pleasant memory in the future.

The resolutions submitted by the committee were adopted.

The following resolution was also submitted and adopted on a rising vote, the question being put by the secretary:

"IX. To our president, Mr. Amoss, for his efficient work as our chief officer and for arranging and conducting very pleasant excursions to interesting historical points in and around Washington."

The following resolution was also submitted and adopted:

"X. To our secretary-treasurer, Mr. Creelman, for his most efficient work in performing his special duties."

GOVERNMENT DISTRIBUTION OF SEEDS.

A resolution condemning the present plan of Congressional seed distribution and asking that it be abolished was introduced by J. O. Thompson, of West Virginia, but after some discussion it was withdrawn.

A paper on "Agriculture in rural schools," by E. P. Powell, of New York, was presented and accepted for publication in the proceedings of the convention (see page 109).

The judging of live stock as farmers' institute work was then discussed (see page 113).

TIME OF NEXT MEETING OF THE ASSOCIATION.

After some informal discussion as to the preparation of a programme and also as to a suitable time for the next meeting of the association. Mr. Miller submitted a motion, which, being duly seconded was agreed to, that the next meeting of the association (at Toronto) be held the last week in June, 1903.

COOPERATION BETWEEN THE OFFICE OF EXPERIMENT STATIONS AND INSTITUTE WORKERS.

Mr. TRUE. Before this convention finally adjourns, I wish to express the hope that members will bear in mind that in accordance with instructions of the Secretary of Agriculture a regular part of the business of the Office of Experiment Stations is now to promote the interests of the farmers' institutes. For that reason we shall be very glad to hear from any of you who are interested in this work and to give you any information that we may have or can obtain for you. If you do not get satisfaction when you write the first time, I hope you will not be discouraged.

The PRESIDENT. Before this convention finally adjourns, I wish to say that it has been a pleasure to me to act as your presiding officer, and I wish to thank you for your kind cooperation with me in the discharge of my duties. I heartily congratulate my successor as well as the convention on his appointment. This has been to me one of the most interesting meetings that I have ever attended, and I have attended many. I feel that our work is now in good shape to bring about most useful results. Wishing individual workers, as well as the organization itself, the fullest possible success, I wish to say to one and all, a cordial goodbye.

The convention then adjourned sine die.

PAPERS, ADDRESSES, AND DISCUSSIONS.

THE FARMERS' INSTITUTE WORKER.

The discussion of the subject of "The farmers' institute worker" was opened by W. J. Spillman, agrostologist of the United States Department of Agriculture.

Mr. SPILLMAN. Mr. President and Gentlemen: I shall not detain you very long on this subject, because, as I have already seen, you are all much more familiar with the farmers' institute worker and what he ought to be than I am. I have never seen a farmers' institute in any other State than Washington and Oregon. I will endeavor to state in a condensed form what I know of the farmers' institute worker in that part of the country.

There is one thing absolutely essential to a farmers' institute man; he must be a practical man; and that is pretty nearly the only requirement. That does not necessarily mean that he must necessarily be a farmer at all. Some of the best work I have seen in the farmers' institute has been by men who never worked on a farm one minute of their lives. On one occasion we got a railroad president to lecture at our farmers' institute. He made a splendid, sensible talk to the farmers; and they came out in great crowds to hear him.

People generally have come to apply the term "practical farmer" to a man who actually holds the plow and works the hoe handle. Such a man may be "practical;" but on the other hand a large number of the men of that kind have been immensely impractical.

On one occasion we had an audience of farmers—about twice as many as there are persons in this room this evening. We had a splendid two-day institute. In the latter part of the second day, when we had got pretty well acquainted with each other, one of the professors of the college was giving a very good, sensible talk on diseases of cattle. There were three farmers who, in response to what the professor said, propounded theories and undertook to explain certain phenomena. When these gentlemen had concluded their remarks, I took the liberty of saying, jokingly, "Now, we have had three farmers here proposing theories. We have always heard that it was the college men who were the theorists, and that the farmer was no theorist, but a practical man. Now, it strangely happens that the only theories we have had propounded here have come from the farmers." I venture to suggest that, as a rule, the less practical a man is, no matter what his calling, the more theories he has to expound.

Now, in the farmers' institute work we want a man who has no theories, who does not work on theories at all. We want a man who is practical, and by a "practical man" I mean one who can see a point.

I believe that the character of the institute work must depend on the stage of evolution of that work, and I believe that in the beginning of this work in any section the best man to send out is the scientist—a practical man who is at the same time a good speaker. After a while, as the farmers become imbued with his spirit, they will be worked up to a proper point of enthusiasm in the work and

will come to appreciate the meaning of the farmers' institute. In this way, as the work goes on, you will, after a few years, begin to discover here and there over the State men who are capable speakers and who are practical men, and then you can gradually introduce them into the farmers' institute work. This has been practically the history that most of you have given here to-night of the development of this work in your respective localities.

Several gentleman have stated here that in their localities the demand has been to have as a lecturer a man who has had the experience of a farmer. I have found that to be the case here in the East. I have attended a few farmers' meetings near this city, and I find that the people in attendance do not care very much for scientists; they want, or think they want, the man who has had "experience on the farm." But that thing can be carried very much too far. Experience may be a very good thing or a very bad thing, and five years' experience with one man may be worth more than fifty years' experience with another. There are things that are very much more important than experience. Ability is worth more than experience, because a man with ability can get experience, but the man with experience may not be able to get ability.

In reading the report of the last year's meeting I noticed that Professor Smith, of Michigan, remarked that an institute is very much improved by having at least one good scientist present. I think our experience in the State of Washington indicates that such is the case, and along with such a man we want also the man who has had the practical experience of the farm. Much depends on his personality, his integrity, and intelligence, and, I will add, upon his experience, if it is experience that is needed. But it is not always experience that we want in the farmers' institute. Sometimes we want a man to deal with principles, saying nothing about experience at all. Take, for instance, the principles of feeding. I believe it is a good thing once in a while to go into a community of intelligent farmers and talk about the principles of feeding, even if the man who speaks is not a practical farmer. And then, too, it is a good thing to have another speaker who will get up and tell about his practical experience in connection with feeding. We have found this method of proceeding to be distinctly valuable in our work.

We discover our institute workers by simply observing. For instance, when we have a meeting of the State Dairy Association we give a number of men an opportunity to try themselves by giving their experience. In this way we frequently discover a valuable man and then we enlist him in our institute work. So, too, the same thing happens in connection with the meetings of the State Horticultural Society; their meetings may develop a number of valuable men. So that we are almost never called upon to take an untried man and put him into institute work.

As ours is a new State, and as we have not yet discovered a great many good institute workers, though we have found some that I think very excellent, we have occasionally used in this work the students of our agricultural college. This may seem somewhat hard on the farmers—they are very often afraid to trust these students—but really in this way we have often gotten very good results. When we take those students out we introduce them to the farmers as young men who are studying at the agricultural college, and in general the farmers like them. At every institute meeting near the college we "run in" some of our students, and they nearly always add interest to the programme. In this way we develop at every meeting one or two very good institute workers.

One thing essential in the institute worker is that he shall command the respect of the farmers, either by his superior knowledge or his superior experience. He must command their respect; otherwise his work will be thrown away.

There is one thing I will venture to say here this evening just to see how far

you may disagree with me. I believe that the farmers' institute work is the most important work that is being done by the colleges and experiment stations to-day. I know that a good many of you will differ with me on this point, but let me tell you there are all over the country institutions that can educate young men, there are people all over the country who can experiment, but there is absolutely no means of bringing science to the man who will not read, except by means of the farmers' institute work. As Governor Hoard said last year, there are a large number of men who can not get anything by reading—they have not been trained to do it. You may take, he said, the model of a cow stall to a farmers' institute and let a hundred farmers see it, and fifty of them can go home and make one like it; but let them merely read a description of it in print, even with an illustrative engraving, and not ten in a hundred can possibly make one like it.

I think the farmers' institute is doing some of the most important work for the improvement of agriculture that is being done to-day. Agriculture is the one great industry of this country, and without question agriculture has been thus far perfected less by scientific investigation than has any other industry. I know no way by which the farmers can profit by the scientific investigation which is being pursued in connection with agriculture unless the results are brought to the farmer by some means, and the farmers' institute is about the best agency. The large mass of our farmers do not read. How many farmers read the literature published by the Department of Agriculture? On the mailing lists of the office of Grass and Forage Plant Investigations are the names of about 3,500 farmers. Every farmer in the United States should receive the bulletins of this office, but of those who do receive them I venture to believe that not half read them.

The farmers' institutes are doing a work that can not be done in any other way. I feel that it is a work worthy of our best men. It is somewhat of a sacrifice for a man who has an opportunity to be an investigator to devote himself to the life of a teacher. But that is what many a farmers' institute worker self-sacrificingly does.

I can not leave this subject without saying that in my opinion the most important man in the farmers' institute work is the State superintendent of institutes. In the State of Washington we have not yet had any such superintendent; yet we have some good farmers' institutes there. A good superintendent can make the institute successful where the lack of a good superintendent may make the institute work a failure.

Mr. MCKERROW. Mr. President, Ladies and Gentlemen: As Professor Spillman has remarked in regard to the State of Washington, I may say that Wisconsin has gone through an evolution in regard to institute workers. Superintendent Morrison, the first superintendent of our work in Wisconsin, found when he began the organization of our State system some seventeen years ago that one of the hardest things he had to contend with was to produce institute workers in whom the farmers of the State would have confidence, workers who would draw the farmers to the meetings and hold them, workers who were free from the stigma of politics which naturally attached to the first institute. He found it a very hard matter at first to overcome the suspicion of the farmers. We had some excellent helpers in our agricultural professors at the college. Such men as Henry, King, and others whom I might name were there ready to take a hand, and then Superintendent Morrison supplemented their work with agricultural editors. We have one very strong man in that line—ex-Governor Hoard. Mr. Morrison picked up other workers as he could find them. Some of them were lawyers who from lack of practice or on account of ill-health had gone into farming and were raising a few chickens or keeping two or three Jersey cows on land which they rented or owned near the village or city in which they resided. Then there were ministers of the Gospel whose health had failed, and who had gone to

raising chickens or something of that kind in order to make a living—men who were very enthusiastic about the chicken-raising business because they had not been in it long. Thus we had outside helpers who could talk very well and talk by the hour if necessary. As Superintendent Morrison has said to me, some of these men were so enthusiastic and so wrapped up in their subjects that they actually talked the farmers out of the meetings, so that the second-day meetings were much smaller in attendance than the first-day meetings.

Then, casting about the State, he finally found here and there a farmer who was a stock breeder, belonging mostly to a class of men who had made something of a reputation at the fairs in our State by winning prizes on their stock and on their butter, and on their grains, and on the other products of their farms. He tried these men, but most of them were not talkers, and failed him in that respect. Then he took up a new plan—that of using these practical men as question-posts, letting them talk from one to five minutes, and then having the farmers quiz them for perhaps fifteen or twenty minutes. Some of those men were thus developed into very good institute workers.

After Mr. Morrison's death, in 1884, I found the same trouble confronting me. The worst trouble I have had to solve has been the problem of getting institute workers—men who could not only draw and hold the people, but give them valuable information in the brief space of time allowed.

I was probably more fortunate than most superintendents are in this respect. While a boy I had begun to exhibit stock at the fairs in Wisconsin, and I followed up that business, so that I had an acquaintance with the stock breeders and the exhibitors of farm products at the leading fairs. I knew how well some of these men could talk—at least in a conversational way. I applied to the best of them to act as institute workers. Most of them said, "You can not get me to leave home in midwinter and travel all over the State in this business; I won't do it, because I don't have to do it." Here let me say that the men we want to do institute work in Wisconsin are those very men; the men who "don't have to do it." We can get lots of institute workers, such as they are: we have applications from them every day in the year, with the backing of the best politicians of the State. But we want as institute workers the men who have business of their own to attend to; men who stand high morally in their respective communities; men who pay promptly all their honest debts, or better still, never contract any debts; men who stand out prominently as the best stock breeders along certain lines, or the best dairymen, or the best clover growers, or the best horticulturists; men who stand out prominently along some one line of work; or men who are known in their communities as the best all-round farmers. They should be, too, men who are striving for the highest and best object of an American farmer—to build a comfortable, pleasant, farm home, in which to rear their families; men who look after the education of their children. When we find such a man, even if he can not "talk," if he can only answer questions, we find him a most useful institute worker. If we get a man who can stand before an audience and have his neighbors quiz him as to how he has succeeded in raising such fine animals or in producing butter that took the prize at the fair, or in making his farm produce the best crops—if we find such material in a man, then we use him and try to develop him; and we sometimes spend a little money along this line of development.

As to the methods of our workers, we have in the first place a roll of 25 or 30 charts for each corps of institute workers, illustrating the best types of draft horses, road horses, beef cattle, dairy cattle, swine, and sheep; or illustrating the laying out of a garden, the outlines of cheap pig pens, feeding racks for sheep and cattle, and things of that kind. Then we have other charts in regard to fertilizing, showing the amount of fertility in each class of farm product, etc. From these charts our speakers are expected to talk. Besides, they carry with them

models of cow stalls, pig pens, and feeding racks. As our ex-governor remarked to me at last year's meeting, "You can teach a man more from an object lesson in five minutes than you can teach him by a long-drawn-out talk in thirty or forty minutes."

Another feature of our method is to have the talks short and to the point. Our rule in general is twenty minutes' talk and twenty minutes' discussion, including the asking and the answering of questions, but sometimes this rule is broken. Sometimes the new workers do not talk more than five minutes, and then we get them into a running discussion.

A DELEGATE. Do you have difficulty sometimes in getting the farmers to ask questions?

Mr. MCKERROW. There is not much difficulty of that kind in our State. In the early days some of our farmers found fault with some of the speakers because they could not answer the questions intelligently, as they thought, or from the proper standpoint. But now we have very little trouble of that kind.

In the first place, when we get to a place to hold a meeting every institute conductor is expected to make it his special business to make every farmer feel that it is his meeting, not ours, and to urge the farmers to be ready with their questions so as to draw the discussion down to their standpoint as quickly as possible. As a rule we find it harder to cut off the discussion than to keep it going.

Our farmers' institutes are so rapidly developing the desire for more education among our farmers, and so many of the boys are sent to the agricultural college to take short courses, that we can not get the agricultural professors to attend the institutes. They are able to do but very little work for us. The most of their work is at our round-up institutes, which form the basis of our farmers' institutes. A practical professor—and there are lots of that kind—is an excellent helper in our farmers' institute work. The impractical man, one who talks over the heads of the farmers, is simply a consumer of time; and I am sorry to say there are a few professors of that kind. I do not mean to say that we have them in Wisconsin.

Dr. TRUE. Does your work have any relation specially to the colleges? Do you encourage the farmers to have their sons attend the college?

Mr. MCKERROW. One of our difficulties is to induce the class of workers that we want to leave their farms long enough to attend to the institute work. We can not hold the professors at our institute meetings for six days in the week. We have tried some of the young men from the agricultural college as lecturers, but many of our farmers have not much confidence in them. On one occasion when we brought upon the stage a young man who had just completed his course at college and who looked rather young, one of our most successful farmers reached over to one of us and said: "I am going out. I like to hear men of experience. When you bring out a youth of twenty years to teach farming to a man who has been at the business forty years, it is time for me to quit." That is one of the troubles we have found in putting young men on the platform in this work. But I am watching some of the short-course boys very closely; they take an interest in the institute and they help us very efficiently; I think they are developing; in fact, I expect to put one or two of them in the field this year. They have been working on their farms for the last eight or ten years, since completing their course, and I think they look old enough now not to be suspected of being destitute of all practical experience.

A DELEGATE. You spoke of supplying your speakers with certain charts and models. Does each corps carry charts appropriate to its particular line of work?

Mr. MCKERROW. Yes, sir. In holding our meetings during the winter we use five corps of workers. Each corps has a conductor, who has charge of the meeting. They generally have a local chairman who presides. That position, however, is rather an honorary one. Our conductor is the man who does the hard

work. He has an assistant. We try to match the two men properly. Perhaps one is a horse-breeder and a successful corn-grower; the other man a swine-breeder and a dairyman combined. Or one of them may be a successful clover man, who understands all about the bacteria of clover, who can give the fruits of scientific research so far as it has reached along that line. Thus those two men cover a very wide field; and we make them work together. Some of these men who are specialists carry their special charts. Each man talks on the subject he is "posted" upon. By working those men in pairs, we cover a very wide field with each pair. An extra man may come in and do extra work.

We aim to teach better methods, and as far as possible teach the why underlying the how.

A DELEGATE. To teach the science of the thing?

Mr. MCKERROW. Yes, sir; to teach the science. I will say that among our workers we have men who have read the livestock journals from the time they were first issued, have taken the best agricultural papers; who have been getting the bulletins of the Department of Agriculture and the bulletins of the experiment stations ever since they have been issued. If I find a man who has been pretty successful in matters of practical farming but who has not been reading up, I insist on his doing so, on his getting the why as well as the how. If he does not read up, he simply drops behind in the race, the same as our ordinary farmers do if they do not "keep up with the procession."

We pay our men a little differently from the plan in Ohio. We have, however, a regular plan which we follow as nearly as possible. I am allowed all the latitude that I require, but at the same time there is a sort of unwritten law which we do not unjustifiably depart from. A new man is allowed such an amount as may seem proper. When he becomes a regular worker we pay him \$20 a week; to the regular assistant, \$25 a week. Their actual service extends over four days of the week.

A DELEGATE. But in connection with their work they are occupied the whole week?

Mr. MCKERROW. Yes; including travel to and from their homes at the end of one week and the beginning of another. The southern half of our State, in which our winter institute work is largely done, is well covered with railroads, so that the men, by using the night trains, can be home Saturday morning, and then, by leaving home Monday evening, they can be at their appointments on Tuesday morning.

A DELEGATE. Do you pay their expenses?

Mr. MCKERROW. Yes; we pay all expenses. I must say that the railroads in Wisconsin have been very liberal with us, although now, under the anti-pass law, we have to pay for everything we get from the railroads. In our bulletin there is a good deal of railroad advertising, quite largely the advertising of railroad lands in northern Wisconsin. This is paid for at the rate of \$50 a page, just the same as is paid by other advertisers. In the days before the anti-pass law the railroads used to say: "Put all the institutes along our lines, and we will make it all right; for you make custom for our lines."

A. L. MARTIN, of Pennsylvania. Mr. President and Fellow Institute Workers: As it is now ten or fifteen minutes after 10 o'clock, I will detain you by only a few remarks on the question of methods.

One method that we have found to work well in Pennsylvania is to begin the institute at the right time, the advertised time, and to close it at the proper time, not to weary the audience; and that rule, it seems to me, ought to hold good everywhere.

Pennsylvania was among the first to inaugurate farmers' institutes. Last year we carried on in that State 324 institutes. We have had a vast amount of experience

along this line. We have not found any difficulty in our State in getting proper attendance at the meetings. Our difficulty has been to get halls or churches of sufficient size to accommodate the people who wished to take part in the meetings. Last year over 150,000 persons attended these 324 institutes. If time allowed I might tell you in detail how we brought this about. The question simply was one of adopting suitable methods and subjects. I may develop this subject further at a later meeting of the convention.

A DELEGATE. You say that you have had during the last year 324 institutes. Over how many days does an institute extend?

Mr. MARTIN. We have had one-day, two-day, and three-day institutes. The meetings begin in December and end in March. Each day there are three sessions—morning, afternoon, and evening.

A DELEGATE. What is the average number of days for your institutes?

Mr. MARTIN. We have something like 60 one-day institutes; about 10 three-day institutes, and the balance two-day institutes.

Mr. SPILLMAN. There is one suggestion which may be helpful to some of the people in new sections. In our locality we have had a great deal of difficulty in getting young men to take the agricultural course at our agricultural colleges, and I have heard that such is the case in one or two other States. To overcome this difficulty we have adopted a method which has had very good results. We have had prepared very nice buttons, each having on it a picture of the agricultural building, with its name, etc. To every man attending the institute meetings we gave one of these buttons. Most of the receivers wore them; many took them home and gave them to their boys. We regarded this as a good way of advertising our college.

Mr. MARTIN. Mr. President and Fellow Workers: I have hastily prepared and will read some points in regard to our manner of conducting farmers' institutes in Pennsylvania.

The farmers' institutes of Pennsylvania had their origin among the earliest established by the States, and were conducted by what was known as the Pennsylvania State board of agriculture up to 1895, at which date the department of agriculture was established by act of assembly, and the division of institutes given in charge of the deputy secretary of agriculture, who is known as director of institutes.

The farmers' institutes of Pennsylvania have long since passed what some are pleased to call the "problematic stage," and are to-day filling such an important place in the agricultural interests of the Commonwealth as to render their continuance of paramount importance. Last year there were held 324 days of institute, a greater number than any preceding year, and in all 782 sessions. Sixty-five different lecturers represented the department at these meetings. The lecturers were selected and employed by reason of their special fitness as teachers and instructors. Many of them have devoted their entire lives to the study of some line of knowledge relating to agriculture. Others were up-to-date, practical farmers, qualified to give the very best practice and their personal experience of farm operations on the home farm. Also attending these institutes, and in conjunction with the lecturers employed by the institute division, were 684 local institute workers. This army of workers, which in Pennsylvania may be fairly classed as the volunteer corps, consists of men and women who reside within the bounds of the county where the institute is held.

Thus we bring to our meetings the experience, practice, and mode of farm operations as carried on in the different counties and sections of the State. We develop an interest in the work that scarcely can be obtained in any other way and at the same time encourage on the part of the farmers of the State a disposi-

tion to better prepare themselves for life's work by personally studying these problems with the idea of presenting a paper or an address at the public meeting.

In all our two-day institutes one session, which is usually presided over by a woman and is known as the ladies' session, is devoted to the interest of the country home. Here are discussed questions of domestic science, household economics, sanitary conditions, as well as social surroundings.

Our institutes have especially advanced along this line by making use of teachers from cooking schools, which are established in many counties of the State. These teachers frequently bring their classes to the institutes and give instructive and entertaining object lessons in the preparation of certain foods.

We still hold to the practice of an educational session, the interest in which is increasing year by year. At this session are discussed all questions relating to the education of the farmer and his children; the improvement of the country school; advantages of the centralized school, which we predict will, in the near future, revolutionize the education of the farmers' children, nature study, and kindred topics. Regarding all these questions the interest is increasing, and the demand for broader and deeper knowledge and better practice is the most encouraging compliment that can be paid to the usefulness of the work in Pennsylvania.

I will supplement the paper I have just read by a few remarks regarding the manner of interesting people in the different counties so as to induce them to attend the farmers' institutes. This I take to be a very important problem in many States, as it has been in Pennsylvania.

In listening to the paper I have just read, you must have observed the vast army of local volunteer institute workers of whose services we have availed ourselves. The programme in Pennsylvania is prepared under the advice of the department by a county chairman of institutes, who appoints in each of the different counties and localities where the institutes are to be held an institute committee of ten, fifteen, or twenty men and women, who in conjunction with the county chairman prepare a programme, on which the leading men and women of that community are placed. In addition to this corps of local workers, two or three State speakers attend all these meetings. In this way the interest of the locality is enlisted. The endeavor is to place upon the programme the names of the brightest men and women whose services can be obtained. Of course the different members of the community will want to hear their friends who have been placed on the programme. I take it that this move has in our State gathered more people to our institutes than perhaps any other agency.

When the institute meets we always have in attendance one man versed in some particular line of agricultural science or knowledge—a man qualified by study and research to answer every reasonable question that may come up, from a scientific standpoint, if possible.

Then, again, we have there the practical man, the man who has had his sleeves rolled up on the farm and who has made a success in some line of farming operations. He is there to give his practical experience and the methods by which he has succeeded.

Then, again, we have the people of the locality generally cooperating with us. By means of these three forces we carry on the great work in our State. That work is growing. It has grown to such an extent that we can not find halls or churches large enough to accommodate the people who come.

A DELEGATE. What is the average attendance?

Mr. MARTIN. The average attendance last year was 487; that is 83 persons per session. Many of our meetings have been so crowded that we have had to hold overflow meetings. In our two-day institutes the interest has increased as the sessions proceeded.

The PRESIDENT. Do your audiences come there to be entertained or instructed?

Mr. MARTIN. The audiences come to be entertained and instructed both, especially to be instructed. It is difficult to separate those two questions. You can not instruct a person unless you entertain him. You must enlist the interest of the people by giving them a measurable amount of entertainment. To illustrate, the county superintendent of public schools almost universally attends the educational session of the institute, and the question of the education of the farmer naturally comes up. This we call entertainment, but at the same time it is instruction of the highest order in the direction of the education that the farmer needs.

A DELEGATE. How much money does the State of Pennsylvania appropriate for farmers' institute work?

Mr. MARTIN. Pennsylvania has increased her appropriation almost year by year, until two years ago \$25,000 was appropriated for the term of two years—\$12,500 per year. The last legislature increased this appropriation to \$30,000 for the two years, to be devoted exclusively to the work of the farmers' institutes. Although this may seem a large appropriation, it is spread out pretty thin when divided among the 67 counties of our State.

A DELEGATE. Do you have any music on your programme?

Mr. MARTIN. Oh, yes. Music is the life and soul of a meeting of any kind. When we hold our meeting in a church the church choir comes in and by its singing enlists the interest of the very best people.

One thing I should say in this connection—you can not enlist the interest of the community in any meeting anywhere in the United States unless you enlist the interest of the women of the community. At our meetings the old farmer's wife sits beside her husband with her pencil and book and jots down items that seem important. The men bring their wives to these institutes, and in this way the interest is largely increased.

A DELEGATE. Do any of your lecturers use stereopticons in their evening work?

Mr. MARTIN. Yes, sir: we have stereopticon views illustrating, for instance, landscape gardening and also giving pictures of the insects which are the foes of the farmer, showing the history of these insects and how to prevent or destroy them. Other views may illustrate the subject of forestry, for instance—an important subject with reference to soils. The exhibition of these views is both entertaining and instructive. Entertainment and instruction thus go hand in hand. The people crowd in so that often it is impossible to accommodate them.

Mr. VAN DEMAN. I am an institute worker who travels in various States, and of course I see different classes of institutes. Allow me to say that as to this matter of conducting institutes on the amusement plan I think it is a great mistake. In my experience the country audiences carry away a great many more sensible, useful thoughts from meetings that are conducted in a straightforward, plain common-sense fashion.

One more point, and that is in regard to the ability of the institute workers to make themselves clearly understood by the people whom we are trying to instruct. I have taught in a class room; I have never been connected with any experiment station; but I know we have a great many scientific men who are very able in their way to conduct experiments and perhaps teach in the class room, but who, when they come before an audience of ordinary farmers and their families, are dead, flat failures. There is no question about it, you must have men who can talk distinctly and in plain words, so that the common people may catch the idea. It is very often a great mistake for an institute superintendent to select a college professor or an experiment station worker, however good he may be in his proper line of work, to go out before the people and address them, because in many cases they can not understand him. I think this is one point that the superintendents ought to be particular about, not to send out from the stations or the colleges or anywhere else men who can not talk intelligently and pleasantly and entertainingly and distinctly before the people.

THE FARMERS' INSTITUTE AS A FACTOR IN CREATING A DESIRE FOR AN AGRICULTURAL EDUCATION.

Secretary John Hamilton, of the State board of agriculture, Pennsylvania, presented the following paper on this subject:

MR. PRESIDENT, LADIES, AND GENTLEMEN: This is a subject in which I am greatly interested, yet in the time which I have had from other duties I have not had opportunity to prepare myself for presenting it in such form as I would like.

Before there can be a true desire for agricultural education, or any other thing, there must first be a realization of need for that thing. Desire for money is the result of some appreciation of its necessity and worth. Desire for clothing is created, first, by the necessity of its use for protection, and, later, by its value in improving appearance. The desire for food is, first, to satisfy the cravings of hunger, and, later, to please the palate. The desire for houses is, first, to secure shelter from the storm, and, later, to provide comfort, convenience, and luxury and to gratify architectural taste.

The desire for agricultural education is created in a similar way and upon the same principle. In agricultural education there is, first, the desire for information in regard to the simplest mechanical methods employed in agriculture, and later for accurate knowledge of principles and of the scientific reasons for doing things.

The development of this desire for education is stimulated by the same methods that are employed by the merchant in exposing his wares in a show window or upon a counter case. Articles which the passer-by never before saw are placed where he can scarcely avoid beholding them. His eye catches a glimpse of something that attracts him. He stops, examines, finds that it will be useful to him, inquires the price, purchases it, and introduces it into his home.

About nine years ago the writer spent a week in a village in the mountains of one of our newer States. The village was situated 60 miles from a railroad, and its only approaches were over a narrow trail, by horseback, or by canoe on the river. The visit was continued over the Sabbath. The only religious service in the town was a Sabbath-school meeting. The building in which the children assembled was a dilapidated old schoolhouse, covered with clapboards. The children were poorly clad—many with unwashed faces—and in ragged dress. There were no music books, the lines being repeated, two at a time, and then sung. There was no library; there were no papers for distribution—nothing to invite attendance. Within the past year I again visited the same village and attended the Sabbath school. The meeting was held in a fine, commodious, new church building, neatly painted, well lighted, and furnished with comfortable seats. The children were all as clean and well dressed as any to be seen in any Pennsylvania town. The singing was from modern books of music; there was a fine organ and an excellent choir. There were library books and religious papers for the children; in short, they had all of the appliances of a thrifty, well-equipped, modern Sabbath school.

The change from the school of nine years ago was caused by a railroad that brought to the town the fashions, manners, and customs of more advanced communities and gave opportunity for the people to see what there is in the world. The exhibition of taste in dress, of cleanliness in habit, and of the conveniences, comforts, and luxuries of civilized life which had been brought to them by a railroad had excited such a desire for their possession that in the comparatively short time of nine years the whole community was radically changed and wonderfully improved.

The farmers' institute has wrought similar changes and like improvement in countless communities and by similar means. It has been to the farmer what the show window was to the stroller along the street or the railroad to the primitive

town. It first attracted attention. Then its exhibit of new ideas and of improved methods was examined. Their value and adaptability were discussed until at length many of the suggestions were appropriated and put in practice, to the great advantage of the individual and the community in which the institute was held. Apathy in agriculture, as in other callings, is the result of either ignorance or stupidity. The properly conducted farmers' institute breaks up this apathy by bringing into the community a choice collection of new ideas and exhibiting them. It starts questioning; excites curiosity; leads to debate. Discussion is followed by experiment and later results in the formation of farmers' clubs, in the purchase and study of books relating to agricultural topics, and finally in the younger members of the community going off to some agricultural school or college to satisfy that intellectual hunger that has been thus created. Those who remain at home use the correspondence course, which has done so much for agriculture in these recent years.

The farmers' institute that is to fulfill its mission is a traveling exhibit of intellectual agricultural wares. The higher the grade of this collection the better and more useful the institute will be. It can be rated along much the same lines as a show. A poor show is made up of poor acrobats, poor trick animals, low-grade comedians, dull jokes, poor equipment, and is altogether set down by an amusement-loving public as a swindle. A good show, on the other hand, has highly trained acrobats, well-bred and well-educated trick animals, high-grade tragedians, bright, sharp, and pointed jokes, and splendid equipment. The amusement-loving public is entertained, and the manager of this show is cordially invited to come around next year.

Wherever a farmers' institute is held that has well-trained speakers, finely equipped, expert, enthusiastic lecturers, agreeable and capable managers, comfortable surroundings, and a live, wide-awake up-to-date programme there will be excited in that community an interest, intellectual and practical, that will not die out with the close of the institute sessions. If the best results are to be obtained, all old, shop-worn goods must be gotten rid of regardless of cost. Nothing except fresh, clean, up-to-date material can be permitted in the modern institute. Every institute ought to be a show window that will be remembered, an exhibition never to be forgotten by the community that beheld it, and impressions ought to be made that will never be obliterated or cease to influence for good those who have received them.

Desire for knowledge is a universal and natural desire. Our ancestral mother, Eve, is recorded as having possessed it in high degree, and yet it is a question whether or not she would not be outclassed when compared in this respect with the men and women of modern times. The modern institute manager, appreciating this common quality in human nature, will make it his chief concern to gratify this desire and see that there is presented to the audience something new and useful to think about and that it is served up in an agreeable and entertaining way. He will imitate the wisdom that guided the individual who beguiled our ancestral mother in selecting apples. He chose a good one, "one that was agreeable to the eye, pleasant to the taste, and calculated to make one wise." Follow his example in choosing topics and persons to present them, and you will soon discover that the farmers' institute may be made a powerful factor in "creating desire" for agricultural education and that the field of experimentation, the correspondence courses, and the schools of agriculture will be filled with anxious students.

Agricultural education has just begun its work. The field that science has explored and accurately mapped in this direction is as yet comparatively small. Its borders, however, are rapidly expanded year by year.

The public are fast awakening to the possibilities of soil production and to the

opportunities in agriculture that hitherto have been unused because of lack of knowledge on the part of those who pass them by. The farmers' institute has been calling attention to some of these opportunities and has been rousing the people to a better realization of the profit, dignity, comfort, independence, and intellectual character of the farmer's occupation, intelligently pursued. The farmers' institute has become a great stimulator of effort, suggester of inquiry, and incentive to the study and solution of the problems that have perplexed the agriculturists in all of the ages that have passed.

The thirst for knowledge in this direction is becoming more and more intense. New needs are being created day by day, and greater skill and exactness are being required in all of the operations of the farm in order to supply these needs. The age of guessing is fast giving way to that of demonstration, and rural life is rapidly lifting itself out of the dull slough of empiricism and drudgery into the more delightful and profitable realm of intellectual life. It is fast becoming a highly intellectual pursuit. The great lever that is aiding as much as any other in this good work is the farmers' institute or meeting, where discussion of the farmer's condition and surroundings is critically and intelligently had and where the presentation of better methods for self-help and self-improvement is made by experts whose right to give instruction has been secured by careful study, observation, and experience of the subjects they profess to teach. The need for education in agriculture is being felt more each day, and this realization is largely due to the splendid work of the men and women who have been engaged during recent years in institute work, in holding up before our farming people the discoveries modern science has revealed, and in showing the adaptability of these discoveries to the varied conditions that exist throughout the land.

Perhaps I may be permitted to add a word or two to the foregoing statements.

I think we have all come to realize the absolute necessity for scientific teaching if we are to stimulate a desire for agricultural education. The instructor must be a man who is superior to his audience in the information which he intends to impart. If he is inferior, or if he deals in commonplace things—if he has no new ideas to suggest—he gives no stimulus to thought and is discredited before the audience, no matter how excellent may be his personal character or how successful he may be as a farmer at home.

He must be able to present what he has to say in such a manner as will carry conviction. The matter must be such as to excite thought in the direction in which he wishes to give instruction.

So we are coming to be more and more dependent upon our scientific men—men who are careful thinkers—who make no assertions that are not justified by the scientific facts as they have been discovered.

Our farmers are coming to discredit a man who gets up and makes a "spread-eagle" speech simply for immediate effect and tells jokes simply for the laughter and applause they may elicit. The people want some man who has something to say that is of value to them, something that is in advance of anything they have understood themselves. They want to listen to a man who is an expert in some line, and they wish him to state his ideas clearly, so that the most uncultivated may understand exactly what he is talking about. This requires in the instructor a man who thinks and who is trained in the expression of thought. It is not every scientific man who can make the impression that such teaching should produce.

We are therefore coming to be dependent upon our agricultural colleges and our scientific men for the accurate information that our farming people now demand. Ten years ago, when I first had charge of our institutes in Pennsylvania, the same class of instruction that is demanded to-day was not required. The great difficulty now is to get men who are capable of giving instruction, taking

into account the advances that have been made on the part of our farmers in science and in appreciation of the truths of science.

That is the first thing I wanted to say—that we are coming now to need more and more in these institutes, if we are going to succeed in creating a desire for agricultural education, teachers who know what they are talking about and are up to the front in relation to the scientific truths that they are undertaking to present. That is the first thing.

The next thing, in my opinion, is that the farmers' institutes need to make use more and more of the work of the experiment stations of the country. There ought to be presented in our farmers' institutes, before the agricultural people, abstracts of some of the excellent bulletin work that has been done by our best scientific men in the experiment stations. We need to call the attention of our agricultural people to the very great value of these publications and urge them to secure them and read them. Although many are now doing this, yet great numbers of our farming people know nothing of what is being done in their behalf by the scientific institutions known as experiment stations throughout the country.

So, too, the work that is being done by the Department here in Washington, the results of which are being embodied in its bulletins, ought to be urged on the attention of the farmers. The institutes, if they are going to create a desire for agricultural education, ought to try to create a desire for accurate information—for the best there is, not for some man's prediction or guess, but for knowledge that has been authoritatively ascertained. The institute lecturers and managers can do a great deal to excite a desire for agricultural education by calling attention to these publications and showing their very great value to farming people.

The next thing, and the most important of all, it seems to me, the culmination, perhaps, of what is to be done in the way of agricultural education is the creation of a desire for agricultural education of high grade, such as the colleges give.

But the thought immediately before my mind just now is the need of creating a desire for agricultural knowledge among the children of the country. This is the foundation question in education to-day, so far as agriculture is concerned. This work in which we are engaged is an excellent work; it has awakened a great interest, and has been of incalculable benefit in the advancement of agriculture all over the country. But in a certain sense it is, I was going to say, superficial; but that is not the word I want to use. The difficulty is that in respect to this knowledge we are now dealing with a class of men who are going to disappear very soon, and we are not getting the benefit of their life work as we should have it. If the man of twenty could, through our work, be equipped with the information that some men here have, and then be put to work, with forty years before him in which to apply the things he has learned, he would be likely to be of more service to the country, of course, than the man of 60 years of age who, whatever he may know, is likely to die in the course of five or ten years.

But the agricultural education now being given by farmers' institutes is meeting this demand and this necessity. It is creating an interest in agricultural education on the part of the grown-up men who have control of the institutions of the country, and while they themselves can never hope to have the advantages that the children of to-day are enjoying and will enjoy, yet they can implant their knowledge in the minds of the children and can make them appreciative of what this education means.

So I think that a large part of the educational work of the farmers' institutes must be directed to the improvement of the country school, to the stimulating of a desire among the country children for a knowledge of natural things. And we now know that this is entirely practicable—that we can take the child, however small, and make the most valuable knowledge interesting and instructive to him, if we know how.

I am greatly interested in this phase of the question, because I think this is the thing that we are to aim at more, perhaps, than any other thing. The difficulty now is that it is impracticable to carry these branches of study into most of our public schools. In our work we talk about "nature study." In our farmers' institutes in Pennsylvania we set apart one evening for the discussion of the education of the farmer and his children. We have been at that for a number of years, trying to stir up the people in this matter of the primary education of children. To these meetings we invite the school teachers and school children and school superintendents and school directors and all people who are interested in public instruction. They have responded wonderfully, so that there has come to be a very intelligent interest in this direction.

At each one of our evening meetings we have had some expert give illustrations of how "nature study" can be taught. Very often on such occasions the lecturer has a body of little children right in front of him. He takes a peach or an apple or a potato and gives a little talk upon it to these children. We find that sometimes there is a body of little children who have lived amongst all these things, who have planted potatoes and dug potatoes, and yet who scarcely know what a potato is. And in the same audience there will be men who have raised potatoes all their lives, but who, from such a lecture as this, will realize that they never have known how much there is in a potato. Thus an interest is created such as never existed before.

The next question in regard to this line of study was the question of time. For the last six or seven years I have been making a crusade in our State to break up the old school system that has so fossilized that in many of the country districts it is not as good as it was forty years ago. I am talking of the country districts. In the cities the schools are splendid: the children get a fine education in all that a child needs. But the country school has been left to take care of itself.

In order to get information as to the condition of things, I wrote letters to 1,500 school districts in our State, and I received replies from most of the teachers. I asked them how many classes they had and how many scholars in each. I had these replies collated, so that I could get at the average. I found that the average number of classes that a country school teacher hears each day in Pennsylvania is 27. You know how little a man or a woman can do with 27 classes a day, and that is the average. There were many teachers who had 40 classes a day. The studies were simply the ordinary studies that have been in the schools for half a century. Now, how are you going to put "nature study" or any similar branch of study into such a curriculum as that?

This matter was brought to a culmination in our State by presenting it to the State legislature. Last winter we had a law passed which authorizes us to consolidate our country schools—to bring a number of them into a central school and transfer the children to the central school—making a sort of high school. By having the schools graded we can put in 1, 2, 10, or 50 teachers, as we desire, and we can establish in any country district a school equal to the best in any town or city of the land. That is the solution of this question.

I think that the thing for the institute workers here to work for is the improvement of the country school, so that the farmers may educate their children out in the rural districts and not be obliged to move into the towns or cities for the purpose of giving their children an education. Last year and the year before we had in Pennsylvania 1,043,000 immigrants, of whom 1,020,000 went to the cities and only 23,000 to the country; and these did not go to the farming sections, but to the mining and lumbering regions of our State. The farming sections last year in Pennsylvania lost about 60,000. What is the reason? The parents can not educate their children in the country as they wish, consequently numbers of them did what every sensible parent must do under such circumstances, if he can, they removed to the towns.

Now, if we can so extend our educational system in the country districts as to make it possible for parents to educate their children properly there, they will stay in the country and this flow of people from the country to the city will be stopped. I think that the aim to-day of the institute work should be this: To bring such instruction into the public schools that the children, as they grow into manhood and womanhood, will understand the natural things with which they are surrounded and will be able to appreciate the higher grade of instruction that is to come in agricultural lines.

Mr. MILLER. Secretary Hamilton has covered this subject fully, and I indorse what he has so well and interestingly said.

Mr. HARDY, of Mississippi. I agree with the gentleman from Ohio (Mr. MILLER) that this subject has been so well covered by Mr. Hamilton that it would be useless to undertake to add anything to what he has said.

However, I will say that we are trying down in Mississippi to extend the farmers' institutes. We have had these institutes there for only a very few years. We started to work with no appropriation at all. A few years ago we received an appropriation of \$500; this year, \$3,000. We appreciate the value of the farmers' institute work and are trying to extend it. If we can carry on the work in the manner in which Mr. Hamilton has outlined it, we shall not only stimulate education along agricultural lines, but create a desire for improvement along every line: we shall stimulate the movement for good roads, which is so essential, and the improvement of the public schools in the country will be stimulated. And so good work in every direction will be helped forward.

I was glad to hear Mr. Hamilton say that the farmers' institute ought to make more use—and I think the colleges ought to make more use—of the instruction and information we get from the experiment stations. I believe that this should be the basis of the text-books. I believe that if we expect to get this stimulus for agricultural education we must base it on the work being done in our experiment stations. My idea is that in Mississippi farmers' clubs should be organized in every supervisor's district of the State; that these clubs should use the bulletins issued by the experiment stations and by the Department of Agriculture at Washington as text-books; that the experiments outlined in the bulletins of the experiment stations should be worked out and the results should be discussed in the farmers' clubs.

An agricultural education does not mean merely such an education as is obtained in our agricultural colleges. It means the contact of one person interested in a given branch with another interested in the same branch, and there is nothing that will stimulate such contact so well as the scientific information obtained in our experiment stations.

We need to have the farmers' clubs coordinated into county farmers' institutes and then into a State farmers' institute, having a stimulus all the way up, based upon scientific knowledge as developed in our experiment stations.

Mr. THOMPSON, of West Virginia. If I have any "fad," it is the common school, and the abuse of the common school in teaching useless trash for the purpose of "mental development," leaving useful knowledge entirely out of the question. I know that our high schools in West Virginia teach the scholars a smattering of French, a smattering of Latin, a smattering of higher mathematics, and many of the students when they come out of the schools can not write a good English sentence and can not even spell many ordinary English words. They know nothing about the scientific and correct use of their mother tongue. They know nothing about the things that they will want to use in their active lives.

Now, I believe we ought to carry out Mr. Hamilton's plan of concentrating a number of the country schools into one central school, and then we ought to confine the teaching there to things that the children need to know in order to

make a success in life. We ought not to have them taught a lot of things that they will never need to know, that they will forget very soon after leaving school. We ought to teach them things that they will put into use every day of their lives.

A DELEGATE. I want to ask Professor Hamilton whether any systematic effort has been made in Pennsylvania to supply the common schools with teachers who can teach nature study. We have not such things in the South generally, and we need to have teachers educated for that line of instruction. Have you in Pennsylvania any general plan with this object in view?

Mr. HAMILTON. We have normal schools which are supposed to be preparing teachers for public-school work. Some of these schools are doing good work in the way of teaching what are known as modern methods of instruction in nature study. The others are simply teaching botany and chemistry. Some of the older principals of the normal schools suppose that they are teaching things that the teachers ought to know; they give instruction in chemistry, botany, physiology, and things of that sort. But modern nature study is an entirely different thing, and but a few are making effort in that direction. The great majority have done very little. We have been trying to stir up the normal-school superintendents to get the instructors to appreciate the value of these new methods, and I hope that in the near future those schools will turn out plenty of teachers thoroughly instructed in these lines.

The teachers we need must be such as have received this kind of instruction. We know what we want and we will not have anything else. And it can not come until we have the consolidation of which I have spoken, so that the schools may be graded, so that better salaries may be paid to the country teacher, so that teaching in the country may be made a desirable occupation. Whenever that comes, the normal schools will fit teachers for this work which they are to undertake.

Mr. TRUE. In the State of Missouri the teaching of agriculture has been regularly introduced into the three normal schools. In two of those schools graduates of the agricultural colleges are the teachers of agriculture. In the other school a teacher of science has added the teaching of agriculture to his other duties. But in a regular way, perhaps in a more thorough way than in any other State, the teaching of agriculture has been introduced into the normal schools of Missouri.

Mr. NALL. I have listened with much pleasure to the learned address of my friend from Pennsylvania (Mr. Hamilton), and I am sure I have been benefited very greatly by it. I appreciated especially that part of his address in which he advised the use of the experiment-station workers in farmers' institutes. Our agricultural bureau, under which the institutes are conducted, is not connected with the experiment station at all, and for this reason we can not get as many institutes as some of the other States. I can not expect to get the assistance of the professors from the college and the experiment station if institutes are to be held frequently, because their services are not to be had. This is one reason why I have comparatively few institutes and have used the means at my command in disseminating agricultural knowledge in my bulletins.

Another point is in regard to getting more advanced speakers. I agree that this is desirable, but there is a point at which we must stop—a point where practice ends and mere theory begins. This is an important consideration, especially in carrying on the work in new territory. It is possible that after a while we may find it feasible to take more advanced and more theoretical speakers.

I want to add a word in regard to agriculture in the public schools. In my State no effort has been made in this direction, and, in fact, it is difficult to say where we shall begin. Some years ago I attended school in one of our small towns where we had a Yale professor. My father was a plain, practical merchant and

farmer. In our locality there were a great many schools, and often there was great competition as to which should have the little fellow who was to be educated. It so happened that my education was committed to the Yale professor, and he was stuffing me with Greek and Latin at an age too early for me to absorb such diet; and at the same time my father had a farmer outside and was sending me there in order that I might learn to plant tobacco, to hoe corn. Thus I was torn between two contending factions. The effort was made to educate me in these two diverse schools; and you see they spoiled me completely. The application which I make of this remark is that it might be best if one scholar should be selected for an agricultural education, another for law, and another for medicine, etc.

Mr. VOORHEES. I wish to emphasize a point made by Mr. Hamilton with reference to the advance being made in the kind of instruction that we are to give in our farmers' institutes. In our State we have had this difficulty: After having had an institute three or four times in a given locality and after giving the people there good instruction we are not able to take there the speakers who can deal with the scientific principles involved in the branch of agriculture in which the people there are engaged. We have got to have a higher grade of men. This is a question which all of the institutes in all the States have got to meet very soon. We have got to have a higher class of instructors—those who have been trained in the science of agriculture and are able to show to the farmers the results of their investigations and how those results are applied in practice. We can not get along, in our State at least, with men who are purely "practical." Those men are all right for the beginning of the work—to get the people interested and to get the confidence of the people by showing that they know something about what is going on upon the farm. But after a while we have got to get on a higher plane. Institute workers must recognize this fact and prepare to meet the exigency. How are we to do it? It seems to me this is a very important problem—one that we must meet, one directly connected with the education of a class of farmers who can not be reached in any other way. I rose simply to emphasize this point.

Mr. TRUE. I want to supplement what has just been said by Professor Voorhees, though it broadens our field of discussion a little.

As I have been over the United States during the last two or three years I have become profoundly impressed with the fact that we are undertaking to do this work of agricultural education and research with entirely too few well-trained men. Gentlemen talk here a good deal, and it is an encouraging thing, about the increasing use which they desire to make of agricultural college and experiment station workers. But the fact is that demands upon those workers for services of various kinds are already far beyond what we can meet, and one of the greatest difficulties which we are now having in advancing our work of agricultural education and research in different lines is that we have not men to do the work.

We are overworking our men, especially our best men. We are calling upon them for too many kinds of service and too much service. Occasionally one of them drops off suddenly, as Professor Goff of Wisconsin did the other day, and we can attribute the loss of such men, in middle life. I think very largely to the fact of their being overworked. They are working too many hours and too many days in the year.

So that, in discussing this problem of securing better trained workers for the farmers' institutes, I think that one important thing is to consider how you can increase the number of trained workers, how you can supplement the work of the professors in the agricultural colleges with other well-trained men. I believe that the solution of this problem will be found in building up in the different States corps of men who shall devote themselves to the farmers' institute work as a specialty.

Mr. LATTA. I want to present what is to us in our State a very practical difficulty, right along the lines of the paper of Mr. Hamilton. I heartily indorse that paper; and I want to stick right to the main thought of the paper. We are not ready for those trained specialists, even if we had them. Our worker to-day par excellence is the practical man. I can now think of two men, one of whom I will call a practical man, who has never had any college training and yet who could discount any man of the college faculty, any man of the experiment station, in clear-cut, definite, acceptable instruction along the lines of definite knowledge—a man who might now and then make a "bull" upon scientific matters, but who in the main is able to give clear-cut, concise, acceptable instruction to the people.

Now, the point I want to get at is this: How shall I get hold of these practical men? How shall I get them to see this problem from the standpoint of Mr. Hamilton and from my standpoint as a teacher in the college? How can I get them to recognize what I believe to be true, that the highest product of our educational work along the line of agriculture, the highest good that we can do for agriculture, is to send a man or a woman out from an agricultural college trained to be a broader, truer, nobler man or woman, trained along the line of the technique of agriculture so as to take hold of agricultural questions successfully and solve them practically, and then to send out such a one with the inspiration to devote his or her life and soul to that great calling. To get such workers is my fundamental difficulty to-day.

Mr. McKERROW has given me a very happy suggestion along that line. He demands of his men that they shall read the current publications; and I want to bring this suggestion back to that point, because we must deal with that class of men at present.

I started out to tell of two men that I knew, and I described one of them. The other was an inimitable instructor, but he was a man who let things remain buried within himself. He was a bureau of information, and yet he seldom referred to anything outside of himself. There was a great defect in that particular man.

Mr. MCKERROW. I want to say a word for the men who are the practical workers, who are doing nine-tenths of the institute work in the United States and Canada to-day, the workers in the field. These men must grow better, must continue to rise, must have their services more and more in demand.

As I stated before, we demand of our workers in Wisconsin that they shall keep up in their reading with the experiment stations and the Department of Agriculture. Quite often, when I am impressed with the fact that one of our men is a little lame in some particular respect, when he makes some such "bulls" as Professor Latta speaks of—when I learn of some experiment along his line which, if studied and acted upon will strengthen him in his work, I call his attention to it; if I meet him I talk with him about it. I say to him, "Here is a weak spot." I always make free to tell my workers of any shortcoming or deficiency. By the way, I attend all the meetings I can. I am in the field all the time doing work myself, and when I find a man making a mistake, or a man who is not posted on a particular thing which he ought to know, I talk with him about it or I send him such information as will post him.

Not only do I demand that these workers shall be readers, but I expect them to test by experiment on their farms the information which has been sent out from the experiment station, thus ascertaining the results of such experiments under the different conditions of soil, climate, and methods of farming, thus determining how far such work is applicable within the lines of our State. And so we believe that our practical workers are being educated upward as the audiences are being educated; and the new men that we bring in must be in advance of the old men with whom we started seventeen years ago. We bring in as we can

agricultural professors, professors of live-stock husbandry, etc., and have them talk at our round-up meetings wherever we can secure them, and our best auditors are our institute workers.

We have in our State a little Irish farmer. When we first brought him to our farmers' institute he was known as successful on dairy lines—as a reader and thinker and experimenter. Professor Henry said to me once that he would rather have any other man quiz him after the lecture than this little Irishman. "That man knows more about experimental work than any other man who has ever stood up on the floor of a farmers' institute to ask a question. When I am lecturing, if I make a little slip, this little fellow is sure to catch me." Yet he is only a practical farmer, not a college man. I am not disparaging college men for institute work, but I do want to say this word for the practical man, inasmuch as he seems to be in the minority in this meeting.

Mr. STOCKBRIDGE. I believe I can look at both sides of this question. Notwithstanding the apparently very great difference of opinion expressed here, it seems to me there is a happy medium or middle ground which can be occupied successfully. It so happens that I am a college man; my personal affiliations are very largely with college and station men. My sympathies would naturally be with the college side of this question. Yet I have had a pretty extensive experience as an institute worker, not only in my own State, but in a number of others. I have personally attended every institute held in the State of Florida; and I want to say emphatically and positively, although I am a college-trained man and have been engaged in station work nearly all my life, that so far as making up my institute corps of workers is concerned I will not have a college man or station man on my staff unless it is particularly requested by people in the locality who have some problem that they want to have him solve for them. If there is a member of a college staff whose presence is particularly requested by any locality, his presence is never denied: but in making up a corps of institute workers who shall be effective in presenting to different localities subjects which shall result in actual, practical benefit, I never of my own volition select a college man. Why? Because my personal experience has taught me that although the college man, when he is also a practical man, is a most effective speaker, yet the fact is, too frequently, that he shoots above the heads of his audience. I believe that the man whose experience has been confined exclusively to college or station work is a very exceptional man if he is able to make himself practically useful in the different localities.

But practical experience has brought me to the conclusion already stated, that on this question there is a medium ground which can be occupied with success. It so happens that in Florida there are a very large number of practical men whose bread and butter depends upon the success of their farming operations; they are men who have no other business than the cultivation of the soil, but at the same time they are college-bred and college-trained men. It is possible that the percentage or proportion of this class of men in Florida who are devoted practically to the cultivation of the soil is larger than in any other State, because it is a fact that certain lines of agriculture, such as the raising of oranges and other fruit, has been very attractive to that class of men. Therefore on my regular corps I have graduates of perhaps a dozen first-class institutions in the great States, but whose present business is confined entirely to the production of crops for the profit they may make out of them. They are the kind of men who make our best institute workers, men who have had scientific training, who are well grounded in the fundamental principles of successful agriculture, but who in addition have had actual experience in the field, and can go before an audience of farmers and say: "I have done this; I have been there." They are the men who make practical institute workers; they are the men I choose. From my point of view they form the middle ground which can be occupied most effectively.

THE FARMERS' INSTITUTE AS A PROMOTER OF A CLOSER INTIMACY BETWEEN FARMERS AND EXPERIMENT STATIONS.

The discussion of this subject was opened by E. B. Voorhees, of New Jersey.

Mr. VOORHEES. I labor under the disadvantage of not having prepared anything special on this line, as I rather expected to base my remarks upon what might be said by Mr. Dawley. Nevertheless I have a few thoughts in connection with this work which I hope will invite suggestions from the audience.

The question implies that there should be a closer intimacy between the farmers and the experiment stations, and I think that all of us who are engaged in institute work, those of us who are engaged in experiment station work, realize this is a very important thing. There is a feeling abroad on the part of some that the experiment station is solely to do work of an investigational character; that its work is pure science. But it is a question with some of us whether that sort of work is the best that can be done so long as there is a large body of workers in the field who can not benefit by the facts of science that are already known. So that the experiment station must be in part an educational factor.

The experiment station, before it can do its best work as an investigating institution, must have the farmers acquainted with, at any rate, the facts of science that are already known. Now, unless the experiment station has an audience that has a familiarity with the principles of science that have been already ascertained, then the work of adding to the facts we already have can be of practically no use to the farmer.

In the work of the experiment station, then, we must have cooperation and intimacy between the man who works and the man who puts that work into practice. In order to have this we must have, in the first place, on the part of the farmer confidence in the man who does the work. The thought has been expressed here again and again that the man to teach the farmer must be practical. Now, I can not see any reason why a scientific man can not be practical. I can not see any reason why the professor of agriculture can not run a farm and run it successfully, and I can not see that the professor of agriculture is a good professor of agriculture unless he can do this. I believe we can not get the necessary intimacy with the farmers of the State and we can not do the work we ought to do in building up the agriculture of the State until we have the farmers believe in us as practical men as well as scientific men.

Now, how are we going to do that? How are we going to make the farmer understand that we are there to help him every day: to help him raise potatoes at a lower cost per bushel: to produce milk at a lower price per quart: to raise fruit at a lower price per basket? On such questions as these we have got to instruct him so confidently, we have got to show him so effectually, that we know what we are talking about that he will take the facts we give him and put them into practice.

This has been the custom, as we all know, in the experiment station work and the institute work. As soon as you get the farmer to believe in you he will accept the instruction you give him and put it into practice.

How do we do this? I do not suppose our method is better than that of others; but I do believe we have had an opportunity for getting at the farmer a little more completely than in other States. We are a small State—a State not now engaged so much in general farming as in special farming—so that we can come in contact with the farmer in his special work. For example, we want to have the farmers see in the matter of fertilizers that what we tell them is true with regard to their special crops. We go into a district and select a farmer who is intelligent, who has followed us in our work, and we say: " You are conducting your experiments to test the effect of commercial fertilizers upon sweet potatoes

as compared with the effects of barnyard manure." We will assist him in planning the work, and when the crop is harvested we will invite the farmers of the neighborhood to see the results, and then, when there is a farmers' institute in that neighborhood we will ask the farmer who conducted the experiments to go into the meeting and tell what the station did in assisting him in his work. The farmer will say, perhaps: "The result has been just what the experiment station men said it would be; he is a practical man." Thus, where the farmers did not have confidence in the professor they have confidence in the farmer, and as a result the whole audience is inspired with confidence in the institution which has sent the professor out.

I believe a farm is a very valuable adjunct to the experiment station for the purpose of bringing about a closer intimacy with the farmer and getting his confidence. If we are going to get hold of the farmer we must farm under similar conditions to his; we must show him that he can do the thing quite as successfully as we can, and perhaps more so.

In our work during the past six or eight years we have had a farm, divided up into plats of an acre or two or three acres. The farmers see the crops and they ask: "How much did that cost? What fertilizers did you use? How much do you get for the crop?" We invite them to come and make their observations. They come in crowds. We invite organizations to come and spend the whole day going over the farm and seeing how everything is done in a practical way. Then they go back to their homes and say: "That is a business we can do; it is not a thing beyond us." The science involved in our operations is not so overwhelming as to prevent ordinary men from putting it in practice.

So I say if we are going to establish an intimacy between the station and the farmer we must inspire the farmer with confidence in us; and if we have a farm, let us work it in a practical way so that the farmer can realize that he can do what we have done. Have your plats large enough to carry on the different operations in the same way in which a farmer is carrying them on; let each plat be an acre or two acres or five acres; thus the farmers will see that there is no "gold leaf" about the operation to prevent their doing what we do. If we want to teach them dairy operations let them see that our cows are every-day cows such as they have on their own farms; let us have the record to show the cost of the keep and the value of the yield. In this way the farmers will come to believe we know what we are doing.

If the experiment station is going to advance rapidly along that line it must be educational in its character as well as investigational, and the educational work will come along the line of inspiring confidence on the part of the farmers that the experiment station men, the men doing the scientific work, are doing it in a way that will result in giving them some practical lessons that they can take home and put into practice. I believe that along this line we are to increase the intimacy between the farmers and the experiment station.

Another matter; perhaps one reason why the experiment station workers are accused of being too scientific and speaking over the heads of their audiences, is because they have not in all cases a farm on which to do their work and they have not the opportunity to do practical work. I think if we provide the station with a farm it will be a great gain.

But there is one other thing we must remember. We must take to the farmers what they need, and it seems to me that the man who studies the question in an experiment station or college is better able to determine what the farmer needs than the farmer himself. Many farmers would prefer to be told what they want to hear rather than what they need to do. They will be ready to hear the experiment station official when they understand that he is thoroughly familiar with the practical as well as the scientific side of farming, and when they find that he

can show them results which can guide their own practice so as to enlarge their income on their investment of energy and money.

It is along these lines that we are going to develop an intimacy which will result not only in building up the farmer himself, but also in elevating the character of the work that the experiment station can do. We can gradually cut away from the necessity of doing "practical" work as soon as we have the confidence of the farmer that we know how to do his line of work successfully, and as soon as we have educated him to see the greater necessity of studying the fundamental principles which underlie the work in which we are engaged.

Mr. WEBB. Delawâre being a small State and not having as large an experiment station as perhaps other States, we have a pretty close intimacy between many of the farmers and the experiment station workers. The latter go out to the farmers and show them just how to do their work by conducting experiments—of course not on every farm, but on selected farms of selected farmers—and the farmers go to the institute and tell what they have done under the direction of the experiment station. Another man stands up and tells that the experiment station has told him how to save a crop of apples worth \$10 per tree in a single year. In another actual case a member of our State staff called on a farmer, a very practical farmer, and told him that he was losing money on a certain crop, and proved it to him by the actual figures, and then he told him how by a little change he could make money on that crop. The farmer became convinced, and he now says that that man is the best experiment station worker in the United States.

Mr. HOSTETTER. The fact stated here by so many to-day, that there is a demand for farmers' institutes, for scientific instruction and scientific speakers, is, it seems to me, one of the strongest possible evidences of the good the institutes are doing. We are creating a demand for something, and as we go on creating the demand there will be a corresponding supply to meet that demand.

This whole subject of experimentation and of agricultural education is new, very new; and the demand for these scientific workers, for men of scientific information, is from the colleges. Before the institutes can be supplied the colleges must be supplied; and as they become supplied, and as they begin to send out graduates, this demand which has been expressed here to-day for scientific workers will be met.

I do not feel discouraged at all by the outlook. I think that the very fact that there is a demand for scientific workers is most encouraging. I can remember that in Illinois a few years ago to place the name of a university man on your farmers' institute programme meant that you would have an empty house. Now that condition is entirely changed. Our institute people can not get as many college men as they would like to have. The demand upon our agricultural college for speakers is greater than they can supply, and this is due to the fact that the experiment station men and our practical farmers have rubbed up against each other in our institute meetings, and the result has been beneficial to both. The farmer is becoming more scientific and the experiment station man is becoming more practical. As these two classes come closer together we shall get better results.

We know that there are different kinds of experiments and that there are different ways of experimenting. When the experimenter comes in contact with the practical farmer and finds out what the practical farmer needs, and carries on his experiments in the line of the needs of the farmer, then you are establishing a closer intimacy between the experiment station and the farmer and are working out good results.

In Illinois we are trying to build up a closer intimacy between the agricultural college and the experiment station and the institute. In other words, we are doing

largely cooperative work. The institute as an organization is standing shoulder to shoulder with the experiment station and the college. The work is being distributed over the State in different localities upon different farms. The work is, partly at least, under the observation of those connected with the farmers' institute.

We are carrying on now in the State of Illinois a series of soil experiments, for which the State made an appropriation of \$10,000. That work has been done under the director of the experiment station and a committee of five of the farmers' institute. Thus, by working hand in hand, we are increasing the intimacy that we desire and increasing the good of the two organizations. From what has been said here, I think that the institute workers should feel very much encouraged in regard to the development of farm work along scientific lines.

Mr. TINDALL. In our State we have been peculiarly situated, and our circumstances suggest that we act upon the principle that education flows from above downward, like the rain from heaven. In order to get the farmers interested, we brought them out, as I have already explained, to the college, where they could be boarded for 50 cents a week. Our farmers have now become intensely interested in the result of the experiment stations. In consequence of the interest thus excited, application was made to the legislature last winter for an appropriation of \$15,000 to carry on experiments, which was granted.

Through these people scattered throughout the State we expect to get good results. I think that already there has been brought about intimacy between our station and the farmers generally which has been most fortunate for the college, the station, and the people at large.

Mr. TRUE. It seems to me that our discussion this morning has taken a very happy turn, because it has brought out the different sides of this matter and has shown, I think, that there is very substantial agreement as to principles and even as to the methods of work: for when we have our friend from Wisconsin (Mr. McKerrow) setting forth as clearly as he did how, by means of the farmers' institutes, he is making specialists out of practical men by bringing them in contact with experiment station literature and experiment station workers; and when we have, on the other hand, Dr. Voorhees, of New Jersey, setting forth how he is making experiment station scientists into practical men, so that they can better appreciate the problems of the farmer, we are certainly getting the two classes of workers in this great field very close together, and we are evidently getting the managers of these institutes into a unanimous frame of mind with reference to what ought to be done.

One thing I want to urge while on my feet is that we should look at this question broadly and should try to look at it correctly, so that there may not be what apparently is sometimes the fact—an opposition between science and practice. That is a false opposition. True science and true practice go hand in hand, and they should never be divorced. They are joined in indissoluble wedlock, and they should remain that way forever.

As regards the work of the experiment station with reference to the farmers' institute, I agree very thoroughly with what Dr. Voorhees said. He made only one remark that I should be inclined to dissent from. He said—I do not think he fully realized what he was saying at the time—I am not quoting his exact language, but his thought as I got it was that the time might come when the experiment stations would advance the grade of their work and get away from the grade of the practical work. I do not believe that time will ever come. The more and the better scientific work the experiment stations do the more reason there will be for their doing practical work, the more reason for working out the problems on which they are engaged in the most thorough way, so that we shall

know not only the scientific principles but how the results can be applied in practice.

I am always pleased when I hear Dr. Voorhees speak on this subject, because I know that if you go to New Jersey and examine into the workings of the New Jersey station you will find, behind the practical work that Dr. Voorhees and other workers there are doing on the station farm, a large and substantial amount of thoroughly scientific work. And I believe that if they were not doing that scientific work as thoroughly as they are, they would not get the practical results which they are getting on their farm.

What I want to urge is that we must keep the two things, science and practice, always joined together in our minds; and when we talk about the experiment stations doing practical work, we must keep in mind that the station can not do the best practical work unless it is also doing the most thorough kind of scientific work.

Mr. KILGORE, of North Carolina. I will say what time permits on this subject of the relation of the farmers' institute to station work. I commenced station work with the birth of the station in our State (North Carolina). I have done considerable farmers' institute work. I know that my station work has greatly helped me in my institute work, and I am equally positive that the institute work has influenced very materially my views and ideas of experiment work.

There is the closest relation between the two classes of work, and I do not believe that the idea should to any extent prevail that there is a disagreement or that the station man is in any way disqualified for institute work, or that there is any difficulty in a well-equipped institute worker doing experimental work. I have a special example in mind, and it is this more particularly that I want to refer to. Three years ago we held in a particular county of our State a farmers' institute. Since that time we have been asked three times to go back to that county. The farmers there were greatly interested, and it is one of the best farming sections in our State. As a result of the institute meetings held at that place, I have obtained ideas or notions prevailing there in reference to agricultural questions that I did not have a proper conception of before. For instance, in the coastal plain section of our State—the pine-woods section—it is very common for our farmers to use tremendous quantities of fertilizers. They have the idea, which is contrary to the general belief regarding soils of that class, that they do not need phosphoric acid for their crops; that it does not benefit them. On the other hand, they say that potash is the main constituent that gives to their crops increased growth. This was a strange proposition to an experiment station worker, and one with which I could not readily agree. At the first meeting, however, I said to them:

"I will not put any theoretical considerations in the way of your practice. If you have found that to be true, I will not say that the experiment station has demonstrated that you are wrong. There can be no real disagreement between science and practice; their results must be identical. If what you say has been found true in practice, then it is truly scientific."

As a result, however, of finding this seemingly unusual idea prevailing there, we began experimental work upon that particular type of soil, which represents something like 40 per cent of the area of our State and upon which some \$4,000,000 in value of commercial fertilizers are used annually. Since that time we have been conducting experiments in that locality just as we would do at the experiment station. In fact, our work there is strictly experimental work, with a college graduate in charge of it, and the work is planned carefully by an experiment station worker. We have been carrying on that work now for three years. The farmers have gone there and looked at that work. They are becoming more and more interested in it, and we are getting results now that are modifying the views of those farmers.

It was this suggestion that we obtained in farmers' institute work that led us

as experiment station workers to make these experiments. I believe that this kind of thing is practical, and I believe, in fact I know, that the results as they come out there, after a sufficient number of experiments, are going to be exploited by those farmers. You see that in my institute work I got ideas that I could not have gotten without contact with those farmers, and I believe it is of the utmost importance for the station worker, at least for certain station workers, to come in contact with the farmers in different sections.

In the same way we have been led to extend our experimental work under the joint operations of the State department of agriculture and of the experiment station. The station is spending its funds in connection with the college; the department of agriculture is supplementing that work, as Mr. Hamilton has explained that he is doing in connection with the work at his station.

The department of agriculture is conducting these branch stations in different sections of the State, working upon the particular types of soil that we have. A soil survey of the State is being conducted by the department of agriculture of our State and by the Bureau of Soils connected with the United States Department of Agriculture.

We have an experimental farm on this sandy or coastal plain soil. We are conducting experiments on the crops grown in that section—cotton, corn, peanuts, etc. We are studying the problems that the farmers in that section bring to our attention. Then when we come to the red-clay soils, which we think are adapted to different crops and should have different fertilizers, we do upon that type of soil similar experimental work, suited to the special needs of that section.

The suggestion of this kind of work came to us largely because of the union of the station and the farmers' institute work; and while I understand thoroughly and appreciate fully the views which have been expressed here this morning by various workers, yet I have never seen and can not now see why a scientific worker, an experiment station worker, should not be (provided he understands the practical conditions) the very best kind of farmers' institute worker. I believe that to be so; and while we may get along a little while by general talk to the farmers, yet there is coming a time when they will want to pin you down to something more definite, will want to know your reason for this or that, will want to know how you obtain your information, when they will ply you with questions as the little Irishman spoken of this evening plied Professor Henry. For this reason you must have as your institute workers either men who do experimental work or men who keep in closest touch with that work.

I believe also that the experiment station worker should be given all the time that can possibly be given to him for his experiments, and that he should not be forced to make long tours on farmers' institute work, thereby consuming his time and sapping his energy and compelling him to neglect his experimental work.

Further, we should have clearly in mind that investigation and research are the basis of every step of progress that is made in agriculture. Progress must come as the result of finding new truths, whether by the farmer in conducting experiments in his own way or by the experiment station worker. We can not make one step of progress without finding something new in regard to the treatment of a crop or the cultivation of a soil or the handling or feeding of an animal. I feel that we can not as station workers and as farmers' institute workers speak too strongly in regard to agricultural investigation and the amount of it that should be done; for it is certainly the basis of every step of progress we have ever made or can ever make in the future.

Mr. VOORHEES. I wish to correct any false impression I may have made when I was speaking of the necessity for practical work in order to gain the confidence of the farmers. I did not mean that we as institute workers or as experiment station men are to abandon the practical work, but I meant that better practical work would come as the result of better scientific work.

TEACHING AGRICULTURE IN THE PUBLIC SCHOOLS.

Prof. C. C. JAMES, of the Ontario Department of Agriculture, Toronto, Canada, spoke as follows on this subject:

It has seemed to me that to bring a subject of this kind before a convention like this was almost like "carrying coals to Newcastle." However, having given a promise some time ago to bring this subject before you. I am here to-night to fulfill that promise.

My subject to-night is agriculture in our public schools. We have seen a great many developments in our comparatively short careers, and, just on the threshold of a new century. I venture this prediction (none of you will be here at the end of the century to gainsay it), that the agricultural development of the present century will far outweigh all other developments.

Although agriculture is the oldest of our industries, yet it has perhaps been the last of all to receive that great impetus which has been found so important in connection with other industries arising out of the application of practical science. It is only fifteen years since I began institute work in the province to the north of us; and if any one at that time had said that within fifteen years I would have the privilege of attending a meeting where the representatives of the American States would be gathered to discuss methods and plans for carrying on the work, as you are doing here, I think perhaps I should have thought that agriculture was on the eve of a very great development.

We have in our province, as you have in your various States, large numbers of organizations looking after the various special interests of the farmer. We have our agricultural college. We have had for some twenty years a pretty vigorous system of farmers' institute work. That has been developing; and to our regular system of farmers' institute work we have added the women's institutes, which some of you are also developing.

The point which I want to come to right here is one which was touched upon this morning. We have these organizations for specialists. We have our agricultural colleges for the education of a few special students; and we have our farmers' institutes and women's institutes for the matured men and women; yet all this time we have, to a large extent, been overlooking or neglecting the great mass of the people who are growing up—the young people, the boys and the girls. What would we think of a system of education in the medical profession, for instance, in which we should say to the young men, "You are free to go into the practice of medicine, to cure diseases, to set limbs, if you can; and after you have reached years of maturity, then we will gather you together into medical institutes; then we will begin to discuss ways and means for the improvement of your profession?" If we should do anything like this in our medical schools or our schools for ministers, we should be set down at once as entirely irrational in our educational methods. Yet that is the position we have been taking until lately in regard to the education of the great agricultural community. We have said to the farmers, "Wait until you have learned a good deal by hard, practical experience; wait until you have become men and women, and then we will begin the farmers' institute so as to give you the benefit of the application of science to your line of business."

If the leaving of work of this kind until years of maturity would be considered irrational in the case of our professional men, why should not a similar proceeding be considered irrational in the case of the agriculturists? Are we to go on along these same lines, waiting until the men and the women shall become matured before we take to them, so to speak, this new gospel of agriculture; or rather, are we to begin at the foundation, as would a great architect, laying a firm, true, substantial foundation upon which these organizations, the agricultural colleges and the farmers' institutes, may erect the proper superstructure?

In discussing this subject, three lines of thought suggest themselves to me: First, the objections that will be offered, largely by the teaching profession; second, the difficulties that the teachers will meet in connection with this work; and third, the advantages or the benefits that will result from the more thorough training of our boys and girls in the simple principles or rudiments of agricultural science.

The first objection is one that you have all met. It is one that I have met very frequently. It is one which I suppose we shall continue to meet until this whole question has been worked out satisfactorily and fully. One form of stating the objection is this: "Practical agriculture can not be taught in our schools; we can not in our rural, or town, or city schools teach the boys how to plow the land, how to raise crops, how to care for stock, how to carry on the thousand and one operations that are intimately associated with farm work."

Perhaps one of the best answers that could be given to this objection might be this: That in our agricultural colleges we do not undertake or profess to teach farming as such. The agricultural college was not established for that purpose; and I venture to say that any agricultural college in the United States that is trying to make farmers as such—practical farmers—is not succeeding very well, for the simple reason that there is only one place where the practice of agriculture can be properly and successfully taught—that place is the farm. We can, however, and we do, take the young man who knows something about practical agriculture and give him a training in agricultural science and the improvement of the methods followed upon the farm.

The objection on which I am now dwelling comes with special force when we consider the class of teachers that we have in our rural schools in Ontario, and I presume you have them also in the various States of the Union. As a rule, the rural schools are in the hands of young women. Many of them have been brought up on the farm and know something about practical farm work; but a great many others have come from the villages and the towns and know practically nothing about farm work. To ask them to introduce into their schools anything that has a close or even an indirect relationship to the teaching of practical agriculture would mean failure at the very beginning.

So that if we are going to try to induce the farmers of any section, or especially the school trustees of any section, to have agriculture introduced into our rural schools, we must be exceedingly careful to lay down as a basic principle the fact that it is not practical agriculture that is to be taught there, but the science of agriculture. The art of agriculture as distinguished from the science must be learned in a practical way upon the farm; but the science of agriculture can be taught and is being taught in our agricultural colleges; and as I hope to show you a little later, a certain amount of it can, I believe, be taught in our rural schools also.

The second objection which I have met with very frequently in discussing this matter with teachers and others who have not become intimately associated with the work, is that agriculture is a dull and uninteresting study. In fact, we can not help observing, when we meet this objection, that the idea really back of it, although the objectors are very careful not to express it, is that agriculture is more or less of a degrading or a degraded subject. This idea, however, is being very rapidly removed, especially through our farmers' institutes. This second objection is one upon which I need not dwell before a body of this kind. As to whether agriculture is a dull and uninteresting pursuit or study, you can answer as well as I can. My own view is that taking the whole field of educational subjects from one end of the curriculum to the other, there is no subject that is so full of life, so full of interest, so attractive as agricultural science, particularly when handled by a man or a woman who understands the subject thoroughly and puts it in the interesting form in which it can readily be put.

The next objection comes as a sort of a rider to the objection just stated. A great many say, "Well, there is a good deal of interest after all in agriculture; but is it an educational subject?" Upon this point there might be presented a long line of arguments upon which, however, I shall not dwell. I simply suggest as topics for consideration and thought the questions: "What are educational subjects?" What are the subjects which ought to have a place upon our school curriculum? Is the teaching of mathematics an educational subject? You all admit that it is. Is the teaching of reading and writing an educational subject? Is the study of the dead languages or the living languages an educational subject? I might run through the whole gamut of the subjects ordinarily taught in our schools and academies, and might ask whether or not agriculture as such can be placed alongside of them. I suppose that if we can reduce agriculture to a scientific basis and prove to those with whom we are discussing the question that agriculture after all lies at the basis of a great many of our various scientific subjects, they will be compelled to admit that there is a very important educational feature in connection with the subject of agriculture.

Another objection which I have met in my experience in the mouths of teachers, school trustees, and others is that all rural pupils are not likely to become farmers. Under the present educational methods, and as teaching is now being conducted, I say to such an objector, "You are quite right; all the pupils in our schools do not become farmers or agriculturists. That may to a certain extent be the fault of the system." But I say in reply: The work of the young man who is going into the legal profession, although that work is to be carried on in our towns and cities, will again and again turn upon agricultural subjects. Many of his clients will, unfortunately, be farmers. Many of the disputes in which he takes part will arise over agricultural subjects. And would it not be to the advantage of the lawyers of this country to know a little more about the science of agriculture? Or, take our doctors, would it not greatly assist them, especially many who are engaged in country practice, if they knew a little more about the science as well as the art of agriculture? And if we come to the more sacred calling, that of the clergyman, I think you will admit that a great many sermons would certainly be very much improved and a great deal of the exposition of the Bible would be much more correct if some of our clergymen had a little more knowledge of the science of agriculture. The Bible itself presupposes to a large extent an intimate acquaintance with the great field of nature. Many of the finest parables, which will be recalled to your mind at once, turn upon the facts of agriculture. I have often wondered how ministers of the gospel could preach from certain texts and carry conviction home to their hearers without having an acquaintance more or less intimate with the great field of agriculture, from which parables and figures in the gospels have been drawn. So it seems to me that even if many of our rural pupils are intending to go into the learned professions, even in their cases a more intimate acquaintance with the great field of agriculture will materially assist their work.

Another objection—and I do not know but that this is perhaps one that I have most frequently met—is this: "We have already on our hands too many subjects." This also was referred to this morning. The objection is, I repeat, "We have already upon our hands and are called upon to teach too many subjects." To this the answer can be given: Perhaps there are now embraced in the school course many subjects that should not be there. If there is anything there which is more important than agriculture, that subject ought to remain. But if agriculture can be treated as an educational subject, if the underlying principles of science which are so intimately concerned with our agricultural methods can be introduced, and the minds of pupils developed, the senses quickened by the subject, and the boy or the girl made thereby a brighter, more intelligent, more wide-

awake, more enterprising, and more successful young man or woman, it seems to me if the curriculum is now overloaded, there must be something there that ought to be pushed aside in order to make way for this very important subject.

Those five objections, it seems to me, can all be met, if the question be considered with calmness and fairness and if we get at the root of the whole matter.

My second division of the subject is, What are the difficulties that teachers are likely to meet with? The first difficulty is that we have as yet very little provision made for the training of our teachers. We should not expect our teachers to go into the rural schools and impart information along these lines without some instruction, some special training. Here, I think, has been the main weakness in our attempt at teaching agriculture in the province from which I come. You can not expect teachers to teach what they themselves do not understand.

The question, however, is one not so much of fact as of method, it seems to me, because what we ought to try to teach in our rural schools is, after all, but a very few of the underlying principles; and if we could only make in our great training schools for teachers proper provision for the instruction of those teachers, it seems to me we should then have taken the first step along the right line.

The second point, with us, at least—and I think the same remark will apply in most cases to yourselves—is that our rural schools are entirely too small; our school sections are too small. We in Canada are now proposing to work along the lines that have been inaugurated so successfully in one or two of the central States of the Union. We are trying to make a grouping of our schools, so that instead of having four or five schools in a township, each with one teacher in charge, teaching all the grades and all the subjects, trying to teach a little of everything, we hope in the near future to have these schools grouped together as graded schools, and thereby we may be enabled to systematize the work according to the methods that have been found to operate so successfully in our town and city schools.

The greatest danger is that the teacher may attempt to teach too much, to make the course too complex, too scientific, too abstruse. We are liable in this case, as in others, to run from one extreme to the other. The introduction of agricultural teaching will probably result in many schools in the teacher trying to do too much and thereby doing nothing well. My advice along that line would be to keep the instruction as simple and plain as it possibly can be. The simplest workings of nature are after all the most wonderful; and the teacher should simply remember that to make the subject interesting and attractive it will not be necessary to go to foreign fields or seek distant climes, but that most instructive use can be made of the simplest and most familiar objects which are right at hand.

What is the underlying reason, for instance, for truancy in our schools? I suppose some of you can speak on this subject feelingly. Here is a school, and among the scholars are some boys—I will not now refer to the girls—who will not remain in school. When they absent themselves, where do they go? Off to the woods and the fields. In other words, they go out to find nature. There is something in nature that attracts them more than does the schoolroom. It has always seemed to me that if we could only bring some of that nature right into the schoolroom, if we could bring there the nature that the boy is longing for, that he wants to mingle with and is bound to have and to know about, if we could bring there the birds and the trees and the grasses and the flowers and study them there, we should solve to a very large extent that great problem, the securing of regular attendance upon the schools, and along with it could be solved to a certain extent, at least, the very important question of discipline.

There are other difficulties that will have to be met. I presume that the greatest one, the almost insurmountable one, will be to convince the school trustees that these subjects can and ought to be taught. I have discussed this matter

very frequently with the city men, the men who are associated with the banking concerns, the lawyers and the doctors and other classes of intelligent men; and I have yet to meet any man of intelligence in these callings who will not say at once, "Why, certainly, agriculture, if it can be taught along those lines, ought to be taught." I must say that I have found greater difficulty in convincing large numbers of farmers that this subject can and ought to be taught in the schools.

We may, then, find a great deal of difficulty in certain quarters in convincing the trustees and other men directly concerned in the school and its welfare that these subjects should be introduced, because, as I have already mentioned, there are certain difficulties that have to be removed. These objections seem to have become ingrained in the rural mind, and it will be very, very difficult to remove them.

Briefly, let me refer to the third division of my subject. What are the advantages or benefits likely to result? First, more knowledge, and out of that comes greater love for work. The connection is so close that we need not discuss it. Knowledge leads to love for work, and love for work necessarily leads to success. Success is most likely to follow in our great agricultural industries as a result of imparting knowledge. I think we need not stop now to discuss that phase of the question at any length.

The next point is that the best boys and girls will be saved for farm work. A great many who now drift into the legal profession to make second-rate or third-rate lawyers, some who drift into the medical profession to make indifferent doctors, some who appear to miss their calling and by some means or other get into our pulpits—many of these will be saved for a more useful and more successful life upon the farm. And a great many who might succeed in these professions will be saved for farm work. A contented, successful farmer is one of the richest assets of any State. I wish I could emphasize and illustrate this thought as it ought to be emphasized or illustrated. Look over your own country, as I look over mine; and where to-day are the elements of danger? From what sources are coming those forces which are threatening? In what direction do we look for possible trouble? I know one direction in which we do not look. Wherever we can put our hand on a successful, contented farmer, we simply say, "That man is all right." We do not look for strikes, we do not look for trouble, we do not look for failure from that great body of men; and the more we can increase that great army of men, the fairly well educated, the hard-working, contented, progressive farmers, wherever we find such men, there we look for success, especially of a material nature; and we look there, also, for those great moral forces which, so to speak, control and contain the destiny of the country, its future prosperity and its success.

Let me put the thought in another form. Suppose we pick out a hundred farmers in a certain section and say to each of them, "By training and education we can help you to earn \$1,000 a year;" and suppose at the same time we say to some town or city man, "We can by education and training help you to earn \$100,000 a year." Would it not be of far greater import, far greater value to a State that those hundred farmers shall be assisted by training and education in realizing, each of them, a thousand dollars a year, than for this one man to realize \$100,000?

There are many lines along which we may allow our imagination to run in connection with this subject; and there is one that is very attractive—the ideal State. If we could picture to ourselves all the boys and girls upon the farms of this country receiving some right training in the first principles of agriculture, if we could see them all started aright, so that as they grow up they would know more about their work, would take more interest in it and become more intelli-

gent, brighter, more prosperous—suppose such a picture realized, what is likely to happen to the country? The foundation of the wealth of the country must necessarily grow at a tremendous rate; this wealth will be more equally distributed than it could be by any other means. Our agricultural colleges would then be numbered, not by the score, but rather by the thousand. The great mass of the people would be clamoring for higher and higher and still higher education. And I wonder what then would become of our institute work?

Suppose now you go into some new section with your institute work. The people have not yet begun to appreciate the importance of education along these lines. You find it difficult to get a foothold. After some time, however, you do secure a foothold in that section, and then you introduce your institute. You find you are working on ground which perhaps is rich and promising but which needs a great deal of cultivation. Your efforts, you feel, are not resulting in that benefit to the community which you ought to get. If, however, that community had been trained up in the simplest principles of agriculture from the start, your farmers' institute organization would be raised to a higher and still higher level, and the agriculture of this country would then begin to assume the proportions that it ought to assume; it would be recognized, not simply by the farmers but by our town and city people and by our legislators. Our laws would be framed and the whole work of the State would be carried on in a very much higher order and along much better lines than they often are at the present day.

Thus it has seemed to me that if we could only begin at the foundation and work gradually up to the great mass of the community, instead of doing as now, trying to work from the top downward, we should be accomplishing a great deal more than we are doing now, even though we are doing so much.

I trust that these few thoughts which I have thrown out, intended to be suggestive, may be productive, at least, of some discussion, and that the movement in which we are all so thoroughly interested will receive from the farmers' institute organization an impetus in the various States and provinces and may rapidly go forward, so that at no very distant day agriculture will assume its proper place, and our schools enlist in their proper work of teaching our boys and our girls the first principles of the science of agriculture, the foundation science of all others, the greatest and most interesting science with which we can have any connection.

HOW MAY THE FARMERS' ORGANIZATIONS HASTEN THE TEACHING OF AGRICULTURE IN THE PUBLIC SCHOOLS?

The discussion of the second branch of the question of teaching agriculture in the public schools, viz, "How may the farmers' organizations hasten this innovation," was opened by E. B. Voorhees, of New Jersey, as follows:

MR. VOORHEES. I think we are all under obligations to Professor James for his outline of the reasons for believing in the agricultural education of the farmer's boy and girl. I do not feel that I can add very much to what he has said along this line. But I do wish to emphasize one point that he referred to, namely, the influence of agricultural training upon those of our citizens who do not expect to be farmers. It seems to me that we can do a good deal along that line. In my contact with the educated people of the country (and I have met a great many) I have found, as it seemed to me, a great deal of stupidity on their part in reference to the every-day needs of life, and the importance of a knowledge of those underlying principles which have been urged as essential for our children and of very great advantage to those who are our teachers in other things.

Now, as to the matter of the farmers' organizations assisting or helping along

this movement of agricultural education in our public schools, it seems to me the keynote was struck this morning by Professor Hamilton. I shall not take up the time of the convention by enlarging upon the great truth which he pointed out—that if we are going to get the proper sort of education along these lines we must first create a demand for it; and we can not get that demand until we have the farmers themselves, the fathers and mothers of these children, so much interested as to ask for greater education for their children than they have had for themselves. So long as the farmers of to-day are satisfied that science can not assist them, so long as they are satisfied to go along in the old lines, there will not be very great progress in the instruction that can be given in the schools to our children. It seems to me that in this respect the farmers' organizations can do a great work by arousing the farmers to the importance of the knowledge that can be gained from the study of the sciences as they apply to agriculture. As the farmers' institutes go on, and as the work goes on in that line, we are going to have a greater interest among the farmers; and along with that will come the greater demand for the proper instruction in the lower schools.

There is one danger, however, in just that line along which Professor Hamilton spoke this morning; that is, in grouping together the common schools into a large high school. That is a good movement; we have it going on in our State. But we find that when we come to inquire as to how much instruction shall be given to our country children, particularly along the lines of nature study and agricultural education, the schools have not room for it. Now, it seems to me that the organization of the farmers can come in right there. They can see to it that in these combined schools there shall be provision made for the instruction of our children in those branches in which we are deeply interested. So long as the farmers' organization does not take an active, earnest interest in this matter, the city man and the "progressive educator," as was pointed out by our West Virginia friend this morning, are going to use their influence in having introduced into those schools a smattering of a whole lot of things—Latin, Greek, French, etc.—which the city boy seems to think he wants, or the city father seems to think the boy needs, so that there is danger that the country boy is not going to get any more out of these larger schools than he did out of the "little red schoolhouse." There is going to be the difficulty, unless we can get the farmers interested so as to take their part in the organization and management of these schools, so as to see that the interests of the farmers and of the farmers' boys and girls are properly taken care of.

There is another line along which I think the farmers' organizations might be very helpful; that is, in creating a proper interest on the part of the teachers themselves. There is the difficulty that has been pointed out again and again. Now, it seems to me that if we can get a sufficient number of farmers in any community interested enough, we can get some man or woman who is acquainted with the merits of the case to go from school to school and give short talks upon the importance of this branch of education, showing how interesting and profitable it may be made to the pupils. We can not get the trustees and the farmers' organizations in our State up to the point where they will agree that the children and the teachers shall have instruction along this line. If the farmers will, by organization and work, cultivate a feeling in the community that this sort of thing would be helpful, they can do a great deal of good in starting the work and eventually in developing it as we would like to see it developed.

I am fully in accord with Professor James that the genuine uplift for agriculture must come from the education of those who are to be the farmers of the future, not so much the education of the farmers of to-day, except in so far as they shall develop an interest in the work that is to go on hereafter.

TEACHING DOMESTIC SCIENCE IN THE RURAL DISTRICTS.

Miss S. Evelyn Breed, Norfolk, Va., read the following paper on this subject:

I will to-day give you some extracts and figures from my reports, covering a six-years' experience in organizing and running industrial classes [among colored people] in the rural districts of tidewater Virginia, and also in connection with public school work.

NORFOLK.

Organization.—Six years ago the Southern industrial classes were organized in Norfolk, Va., Norfolk being selected as the basis of operation on account of its accessibility from other points in the State, a large and rapidly increasing population and the urgent necessity of such training for the women and children. No attempt was made at first to induce the authorities to put such industrial classes in their schools, although that was the main object of the promoters; however, permission was obtained to use the one negro public school building after school hours for such purposes. The building is large, well built, and admirably adapted for the purpose. The reason for selecting the public school building, a reason which has always applied, is getting from the outset a hold on the board of education and gaining their cooperation, doing away at the beginning with an idea of this work being considered a public charity or a purely outside movement.

Equipment.—There were no extra rooms available for the cooking and sewing classes. A primary room which was dismissed earlier in the day was decided upon for the cooking room, the earlier hour at which the room was accessible making this desirable. It is a large room with five windows, and has the great advantage of movable desks. Ten feet across the end of this room (making a space of 24 by 10 feet and taking in 3 windows, 2 at the end, and 1 at the side) was appropriated for the equipment. In the space between the windows two gas stoves were placed; on either side of the stoves were large tables, one covered with zinc to serve for the dish washing. Across the corner, on the right, a corner cupboard was put in; this holds the actual kitchen utensils. On the left is a movable safe holding the smaller articles, and next to that, although against the side wall, is the supply closet and an Aladdin oven. A long table on rollers goes across in front of the gas stoves; this table is narrower than usual, owing to the space limits. A small folding table, standing during class hours under the side window, a beaten biscuit block which also serves as a table for the tub used to drain the dishes in; and a small china press between the side windows complete the equipment. The walls are of blue kalsomine, making an excellent background for the Pratt and Department of Agriculture charts; blue and white striped curtains cover the blackboards which go around the room when not in use, and add very much to a certain air of homeliness, and white sash curtains are at the windows. Two denim screens hide the stove and screen off a dining-room when needed, and a small oak desk, which is brought in for the teacher, adds to the general appearance.

A sunny room was selected for the sewing room, also used for the library, emergency classes, special classes, and gatherings. A few pictures, an organ, and plants were bought. The bookcases in this instance were purchased secondhand, as nothing in the way of new bookshelves was possible at an economical figure at the time and the cases were added as they were needed. The exact figures in regard to equipment I can not give. We were obliged to use gas for cooking purposes on account of the insurance clause. About \$150 was expended for the cooking equipment, which included at first one gas stove at \$28, one at \$20, charts \$15, oilcloth covering the floor of the 10-foot space \$5, cooking utensils about \$40, ice box \$15, furniture and miscellaneous about \$47. The Aladdin oven is not included, as it was a gift. This outfit is not sufficient for individual work. This amount,

with \$500 spent for improvements and the sum spent for the furnishing of the sewing room and office, probably meant a total expenditure of \$1,000. Everything necessary was purchased and everything done to make the rooms attractive in order to appeal to the community. Such a work could be started much cheaper. It has been since, but this was to be an object lesson. While curtains, plants, and pictures are not necessities, they all had their place in this instance.

At the end of the primary school day at 2 p. m. the room is swept, desks moved back, and cooking equipment put in place. At 2.30 the grammar grades report for their lesson, which is over at 4 p. m. The cooking classes were opened—class hours from 2 p. m. to 8 p. m. daily—two classes per day.

It was possible to secure seamstresses to give the sewing lessons; it was not possible to secure cooking teachers. A normal class was organized and the county teachers induced to avail themselves of these classes. From the beginning the requirement for admission to the normal class has been a certificate as a county school-teacher, which in Virginia stands for certain State examinations passed and certain regulations conformed to. The classes were free, girls in the afternoon and women at night. The usual courses in cooking and sewing were given, mothers' meetings started, emergency lectures given, and a library for general distribution collected. The cost of these classes has been the same per capita as in the usual public school work everywhere. There are two extra expenses—a boy to sweep, move the des's, and rearrange the room for the cooking lessons, and a woman to take the usual janitor's place and be responsible for the building. This costs \$10 per month, otherwise expenses are about the same.

This plan was pursued for four years. In the meantime two classes of public school-teachers had graduated as normal teachers. Some of these young women found employment in two instances as heads of domestic science departments in schools; some were already employed by us and the others are keeping on with their own school work. The schools in Norfolk County had been visited, and a general interest had been aroused. Appeals were coming in for cooking or sewing classes at these schools or in some little settlement. These appeals were arranged for when practicable. As far as possible the public school buildings were utilized. The authorities were ready to cooperate and showed their interest by visiting the classes and always encouraged a further extension. This in part is due to the superintendent of education in Norfolk, Mr. R. A. Dobie, who has warmly espoused the work and has never hesitated to indorse it. To his broad-minded policy it owes its success.

RURAL DISTRICTS.

When the schoolhouses were not available for cooking classes, the teacher usually prevailed upon some one to lend a kitchen. These kitchens were small, and besides a stove and one table, were devoid of equipment, water being procured from a pump in the yard. Cooking utensils were supplied from the 5 and 10 cent stores in Norfolk, and the kitchen made possible at an expenditure of from \$3 to \$5. The members of the night class brought their own lamps, plates, knives, and forks. While this is not the best plan, in one way it did something a completed outfit would not, it aroused personal interest and the people felt they were doing something for the work, and they had a part in it. Sewing can always be taught in the schoolhouses.

Present plan.—At the end of four years the Norfolk city board established this work in their curriculum in the colored schools, and sloyd, sewing, and cooking are taught during school hours. The normal classes continue, and a large number of teachers in the county and cities of Portsmouth, Berkley, Newport News, and Norfolk are enrolled or have been members of the training classes, sloyd, basketry, and chair caning being added to the teachers' courses. These classes meet from 4 p. m. to 8 p. m. Friday afternoons, making it possible for the teachers

to come in from all around the county. These teachers are either teaching these branches in their schools now, or will. Materials are sent them, plan of lessons, and explicit instruction. They carry on their work, sending in monthly reports. Some of these schools are visited weekly, others not more than once a year.

The schools in Norfolk, Berkley, Portsmouth, and Newport News are of course under direct supervision, and specially paid teachers are sent to these schools, but out in the county that is impossible. The salaries vary from \$16 to \$45 per month and all traveling expenses are paid. For work in the rural districts 50 cents per lesson is paid, arranging so a teacher will have two lessons the same day at a school.

One of the outgrowths of this work, which shows the general interest, is at Deep Creek; here are five schools from 3 to 4 miles apart. The county superintendent induced a young woman who lived in this neighborhood to come in for the normal classes throughout the winter months; she went once a week to each of these schools, walking the entire distance and teaching boys and girls alike to sew. The parents provided the materials. Coming to headquarters one day in the week made it possible for the teacher to arrange for special instruction, supplies, etc.

Another outgrowth is at West Norfolk. The parents rented a little three-room cabin adjoining the schoolhouse, paying 75 cents per week rent. The school board provides fuel; the neighbors contribute vegetables. The boys of the school painted the inside of the cabin and made shelves for the kitchen of the boxes the utensils were packed in. A table was made in the same way. Thirty dollars was spent on the equipment. The upstairs room is only used as a storeroom; the downstairs rooms are arranged for kitchen and dining room. Sewing and cooking classes are given two days in the week, three classes each day, one of these classes being a mothers' class. The bills for this school per month run between \$7 and \$8. The classes do all the housework connected with their house, even to chopping the wood. The cabin is fitted up as any cabin in the neighborhood might be. The stove cost \$12 and is like its neighbors. The equipment is not adapted for individual work, and the group method is used here and also for all our neighborhood classes. The people are very proud of this house, and it has been an object lesson in the neighborhood. The teacher goes from Norfolk by trolley, but has a walk of about a mile besides.

Fitting up rural schools for cooking.—There is no reason why sewing, cooking, and sloyd can not be taught in every rural community with slight expense. The heating stoves in the rural schools can be changed to cooking stoves and a simple cupboard put up against the wall to hold utensils at a cost of about \$6. A local carpenter can do this if the boys can not, or some one in the neighborhood sufficiently interested to help in this way. Shelf tables, suspended from the wall on hinges, can also be put up by the carpenter, and the whole equipment when not in use need require very little extra room. Thirty dollars should cover the first cost, and some money be allowed to replace articles that will be broken or lost. The materials used will vary greatly in cost according to the locality, and the teacher's salary according as you pay your public school teachers. The industrial teacher should be paid more than the county teacher, as more is required of her physically. The cost of the sewing is the same as anywhere else, as standard prices govern these supplies; also the sloyd, basketry, and chair caning. In each community there are industries that are peculiar to that locality, and it is well to adapt such work in the regular school curriculum. One very excellent substitute for bowls and dippers in the rural district is the gourd, and another variety of gourd furnishes the dishcloth. On the utilization of the near-at-hand things depends a great deal of the success of this work, and the people undoubtedly appreciate this. They feel more in touch with what is being done.

Organization.—I would suggest always as a first step parents' meetings, and after interest is aroused and you are positive such classes are wanted, sewing for the girls and some industry for the boys which requires no great outlay. If possible, arrange with the county teacher to take and carry on such classes herself. Then, if the work grows, form cooking classes and send a special teacher, unless the county teacher has been a member of some training class. Before the special teacher begins, I would be sure that the community would help in some way, no matter how small.

As a prelude to all this work, teachers' classes should be established at some place easily accessible to all. This takes time. Naturally the teachers will not at first feel that they can spare the time, but if the lessons are so given as to arouse interest in the beginning it will work itself out.

Correlation.—Much can be accomplished by the special teacher in aiding the regular teacher. She can distribute for the regular teacher reading matter, mounted pictures, seeds, and leaflets to correlate with the nature-study work; for the question of gardens seems to belong quite as much to the one department as to the other. One of our pupils is a school-teacher in Southampton County. She teaches sewing in her own school, and distributes supplies to eight schools in the county. They report to her and she to us. We see this work about once a year. All the teaching is voluntary and done in each case by the school-teacher herself. After the schools close this woman goes from settlement to settlement in a mule cart, owned by the neighbors by whom she is entertained over night, and gives cooking lessons in the homes, the women making aprons and quilts to raise money for the lesson. The expense of material is borne by the members of the classes, and the equipment is simply what the home affords.

A SUMMER CAMPAIGN IN VIRGINIA.

You may be interested to hear of one experience in the upper part of Virginia; a summer campaign lasting three months. Summer was selected because the roads were in good condition, the planting over, and the women more at leisure.

Cooking lessons had been held out as a reward to the sewing classes at the five distant county schools during the winter. These schools were scattered in Frederick and Clark counties. Winchester, being the central point, and largest town was made the base of supplies, the respective villages being from 10 to 13 miles distant.

The course of twelve lessons required three months, and at the outset it was a problem how these lessons could be given at the various villages, devoid of railroad connections, without involving an unreasonable expenditure of money.

The only feasible plan was to drive, and carry all utensils, etc., and so avoid the fitting up of five class rooms. After much planning a wagon was secured, with room enough under the seats for two long baskets in which were packed the various requisites, which were as light as possible so as not to burden too heavily the horse, which had from 92 to 100 miles to cover per week. The supplies, too, were largely taken from Winchester, as many every-day articles were not to be found at the little cross-roads stores.

The pupils.—The people were willing to do all they could and offered their kitchens, but in two cases only was it possible to accept, owing to the lack of accommodation. The first week was devoted to thorough cleaning, and the one extravagance of the whole term was the purchase of numerous cleaning agents. This general cleaning was a great surprise to the classes. After having a stove blacked with a new broom and a room scrubbed without moving anything—the chairs, pails, etc., carefully scrubbed around, leaving little deserts of dryness and dirt when they were lifted up—a few practical lessons were given in cleaning,

which later on produced very good results among the children, and quite transformed the dingy, dirty, old halls.

Instruction.—It was found impracticable to carry out a regular course of lessons owing to the difficulty of procuring material. In the adult classes a course of invalid cookery was considered most essential, as they lack especially knowledge of the proper preparation of the simplest forms of remedies and nourishing food. In all cases the lessons were adapted to the special needs of the pupils and to the food supply available.

Expense.—One hundred and twenty people were taught cooking for three months at an expenditure of \$463.47 (not including teacher's salary), or about \$1.36 per capita for the course of twelve lessons. The heaviest expense was for driver and horse, about \$71.25 for three months, leaving the balance for rent, fuel, material, and incidentals.

Outfit.—The wagon used was a "democrat." It was strongly built and wide. Underneath the wagon hung two pails, the water and scrub pails. In the baskets under the seats were carried a dozen cups, saucers, forks, spoons, knives, plates, half dozen bowls, half dozen saucepans, and what would be considered absolutely necessary for the equipment of one school. Some tin pails were purchased, in which were left the dry supplies, and each school had its own dish towels, broom, dustpan, and scrub brushes; otherwise the equipment was carried from place to place.

At Middletown.—The lessons were given in a hall. A stove, some old church pews, and a table constituted the furniture, which was all rented at \$2 per month. The stove (the best one that we could procure) lacked a good many essentials and unfortunately had no feet. One day it toppled over, ruining everything and delaying the lesson greatly, which was, however, successfully repeated after the damage had been repaired. The water all had to be carried here from a neighboring brook, and one small pupil fell in, narrowly escaping drowning. After that the driver, who cut the wood, went on errands, took care of the horse, scrubbed floors, did the packing, etc., added to these numerous duties the care of the small children who accompanied the mothers and older sisters. These women lived on little farms, frequently from 2 to 3 miles from the village, and yet, after a hard day's work, they walked or rode in on a mule, nearly always bringing two or three small children with them. As a class they were industrious, hard working, and very ambitious for better ways of housekeeping; that was the vital point which appealed to them. They were not far enough advanced to desire education. They could not read. To have a comfortable home with its little garden attached was their great desideratum. They lived in two or three roomed cabins, weather-boarded, as a rule; the garden affording sufficient vegetables, and the inevitable pig the meat supply. They went out as nurses and cooks in the neighborhood, and so supported the family. They liked the cooking lessons, for it enabled them to earn more money by cooking for the country families, and they recognized and appreciated fully the advantages of being taught invalid cookery which they were quick to adapt to their own needs.

Whenever possible supplies were purchased from them, so as to give them a financial interest as well in the welfare of the school.

Stephens City.—At Stephens City the lessons were given in a typical Virginia log cabin, the light and the air as well as the rain coming in through the crevices, the ducks, chickens, dogs, and babies all as much interested as the class and quite as regular in attendance.

These classes did the best work and were enthusiastic and appreciative. They brought constantly donations of radishes, cucumbers, lettuce, and parsley, as well as fruit in season, for the lesson. The women ranged in ages from 22 to 65.

The children's class numbered 19; average age, 12 years. Dishes were sent out

from every lesson to the sick and infirm of the neighborhood. This is the custom in all classes. The children were also encouraged to take home something to their parents, which they took pride in doing. The people here were in the same circumstances as at Middletown, and nearly all owned their homes.

Miss Emma S. Jacobs, director of cooking schools, Washington, D. C., discussed the same subject as follows:

What is this domestic science and art which has been added to the subjects taught in so many schools throughout the land and at which, until recently, so many teachers and superintendents have looked with suspicion and often displeasure, declaring it was entirely out of place in the public schools?

Under this term are included the various household arts, such as the preparation of food, the making of garments and household articles, the building, furnishing, and keeping of the home, and the keeping of things clean. In other words, it includes all those subjects which have to do with maintaining the home and the inmates of the home.

To carry on certain of these processes, especially the cooking and the cleaning, the principles of chemistry, physics, and biology must be used, although unconsciously used; while for other processes, such as furnishing and decorating the home, the principles of the fine arts must be used. So, speaking in the broad sense, this subject is one form of applied science.

But is it not more than this? The term "domestic" carries with it the thought of things connected with the home. When a child is born he becomes the center of the home circle. His first impressions are received from this home; as he grows he is influenced by the conditions of the home life and made or marred accordingly. Now, as he is not born for himself alone, these impressions and influences should be of such character that he will be trained by them to perform his obligations to his fellow-men, hence the conditions surrounding him should be as nearly perfect as it is possible to have them. In the maintenance of the home, energy, time, and money must be consumed, and if this child is to help others, he must be trained to correctly estimate the value of these three things. As the earlier impressions are the strongest, the home, during the formative period of his life, should be so conducted as to secure the very best results with the least expenditure of time, money, and energy. How to conduct the home on this principle is one branch of the broad subject, economics. Domestic science treats of this, hence it is even broader than a form of applied science and should be classed as home economics.

As we look about us and study the homes and the children in the homes, we soon realize that there is a vast waste of time, money, and energy. Home economics emphasizes the home as the unit of society and the management of the home as a business where the wife is the partner. On her ability to direct and spend wisely depends the success of the enterprise. Surely, then, if so much depends on the wife, our girls should be as well trained for this business of directing and spending as are our boys for earning.

Again, we find very few people who are well. Do you realize the vast waste which results from this imperfect health? Have you taken account of the time lost by those too miserable to work, or even of the poor quality of the work done because of this condition? Whoever does estimate this and adds to it the actual money spent in the endeavor to keep well will be astonished at the number of figures required to express it. Do you ask the cause of this imperfect health? In the majority of cases it is due to the unsanitary homes and the unhygienic conditions in which we live. In other cases it is due to lack of nourishing food. I do not mean that we do not eat a sufficient number of ounces of food material, for we do, but that this food is so prepared and served that from it we get little nourishment and often none at all. If this be true, then it is time our boys and girls

were taught something of these things that they may secure for themselves well-built houses, perfect plumbing and city drainage, good water, pure, well-cooked food, and clean streets. But should these things be taught in the public schools during the early formative period, in special schools during the latter part of the formative period, or after maturity is reached?

The modern idea of education is to develop and train the individual to think, plan, and execute; in other words, to so prepare him that he will be able to give visible proof that he understands the things he has been studying. Does this subject of home economics offer any opportunity for the individual to gain this power?

Through hand work comes the gradual increase of muscular control and the power of inmuscular expression which makes the worker self-reliant. If, at the same time, he learns to secure results with the least expenditure of time and energy, he will be a valuable workman. In the basket weaving, modeling, sewing, cooking, and other household occupations there is much opportunity for this hand work, and, where the reason for doing these things is well understood, there will be a coordinate working of mind and muscle. Moreover, by the actual doing of these things a new aspect and a new value are given to the hand worker, and he who is an intelligent hand worker will be as much respected as he who can calculate the distance to the moon. This change of attitude toward the position of cook is one which is to be especially desired, and not until the mistress realizes that brains are required to make a loaf of bread or a kettle of soup can we ever hope to have better work done in our kitchens.

In the operations of cooking and cleaning, the student deals, as he does in chemistry, physics, and biology, with forces which are outside himself and soon learns that he must know how to use these forces if he would secure the desired results; that it is not as he pleases, but as nature must that results are obtained. So he is gradually taught the meaning of obedience, freedom, and self-control, three very important things for the youth of to-day, for whom the term "personal responsibility" has little or no meaning. When this knowledge is once acquired, he will cease to say: "I will live where I please and eat what and when I please."

As success depends on obedience in applying principles, then failure has a cause, to find which the student's reasoning faculty must be called into play. His judgment also is trained when he is given the opportunity to select materials and decide where and how to use them to the best advantage.

As the power of expression and self-control, the reasoning faculty and the judgment are developed by these things which come under the head of home economics or domestic science, then this subject should be taught in every public school, for these are the powers we want all our young people to have. You will perhaps agree that this should be done in the city schools, but hesitate to accept it for the country schools, arguing that the country children go to school for so short a period that all the time should be spent in learning to read, write, and make calculations. Do not the conditions of ill health, poorly built and ventilated houses, and unsanitary surroundings prevail in the country districts as well as in the city? Is not the food you eat in the country as poorly prepared as at any place in the city? And is not the development of the individual as important in the country as in the city? These people can not put their homes on a good business footing until they realize that their unhygienic ways of living are responsible for so much of the nonsuccess and unhappiness in their lives, any more than they can put their farms on a paying basis until they understand that everything on the farm has a value, and that the highest efficiency of work or product is obtained only when all things are as nearly perfect as possible. Animals will not give their best unless well fed and cared for. The land will not yield a full crop unless

it is well prepared and contains those elements which are necessary for the production of the crop; then how can man attain to his highest efficiency under existing conditions? For this reason, teach the boys and girls how to get well and keep well.

But how much of this can be taught in the rural schools; who is to teach it, and how is she to teach it, are some of the questions which confront us. Certainly the teacher who is now employed in these schools can not do it. Then it must be by a special teacher who will visit the schools in succession periodically, taking her material with her.

SEWING AND COOKING.

What branch of the subject can she select which will give the most effective training with the minimum of expenditure? Sewing is most easily introduced, because the implements are easily procured and carried. Under this head the production of the fabric used can be studied in addition to the fashioning of simple garments. The difference between cotton, silk, and wool as a means of protection, as to wearing qualities and the power to take and retain a good color, should be shown. With this should be given lessons in the harmonious blending of color; lessons in drawing and molding such things as will inculcate a desire to be surrounded by beautiful forms. If samples of dress goods, wall papers, and finished woods of good color, design, and quality be used when giving these lessons, an interest in the home furnishing, the trimming of hats, and the making of dresses will soon be awakened.

Cooking is another of the subjects which can be easily introduced. With a simple desk equipment of alcohol or coal-oil lamp, a few knives, spoons, pans, and forks, which can be packed in a hand bag, much work can be done and an interest awakened in the food supply.

The amount of water, starch, and cellulose in a potato can be easily shown. The difference in the mealiness of potatoes which have been pared and soaked a long time in cold water and of those which have been cooked as soon as pared can also be shown. When the children know that the starch is held in the cellulose pockets of the potato and can be washed out by cold water they will understand why there is this difference. When they know that the starch is the nutritive part of the potato and that it is most abundant in the outer layers, they will remove a thin paring only or will cook it in the skin.

The softening and solvent power of water on food can be shown with the white of egg and fresh meat. From these experiments the children will learn that by washing and soaking fresh meat in cold water much of the flavoring and coloring material of the meat will be drawn out. Hence, except when making soup or broth, meat should not be put into cold water if a good flavor is desired. How to keep tender meat tender and make tough meat tender can be shown by experiments with the white of egg, pieces of meat, and hot water.

The reason for the use of soda and of baking powder when making bread can also be shown and explained by means of simple experiments, and when this is once understood better bread will be made. An experimental study of the use of yeast when making bread is a more difficult subject, but by letting mold grow on various articles, then examining it with a magnifying glass, the plant structure can be seen. From this the subject of the minute, invisible plants can be introduced. The action of these organisms on food can be shown by the souring of milk and the fermenting of fruit juices. The power of heat to destroy these plants can be shown by putting boiled and unboiled grape or other fruit juice in sterilized and unsterilized bottles and by adding to different bread mixtures yeast which has been mixed with boiling water and yeast which has been mixed with luke-warm water. When the temperature has been as great as that of boiling water

no change will be perceptible in the mixture treated, though kept in a warm room many hours for bread and many days for other materials, but where the heat has been less than this a change will be apparent in a few hours in the case of bread and fruit juices. This will prove that the temperature of boiling water is an effective one for destroying some of these organisms. In this way one of the most important lessons in the care of the dairy and utensils can be given. By such means the principles employed in the preparation of food can be very easily taught and an interest awakened in the home work, which interest can be stimulated by giving the full details for the preparation at home of several new dishes.

With a lamp chimney, candle, piece of cardboard, and matches, the burning of a fire in a stove can be explained and a simple system of ventilation taught.

The effect of heat, water, different kinds of soap, washing powders, and sunlight on different fabrics can be shown by using them on small pieces of goods. The cause of so many of the rust spots on clothes is the imperfect rinsing before putting them in the bluing water. The free alkali of the poor soap used breaks up the bluing, which is an iron compound, and the iron is deposited as a rust spot on the goods.

With a simple kitchen outfit, small coal oil stove, and oven, all of which can be packed in a box and moved from place to place as needed, much more can be taught than the principles underlying the preparation of food. With a more elaborate equipment and a separate room for the work, a greater number of dishes can be actually prepared and served and the rudiments of home furnishing and keeping be taught.

The next subject bearing on the home life is the condition of the immediate surroundings of the house. Besides the actual raising of plants much can be taught about the soil and the drainage of the land under the head of gardening. Here emphasis can be laid on the necessity for having the well walled and for carrying all waste to a great distance from the house.

From this brief outline you will see that much can be done in the rural school by a traveling teacher to teach those things which will tend to place the home life on a higher plane, thereby securing for the children who are to be born more favorable conditions for beginning the struggle for existence.

There will of necessity be many schools which such a teacher can not reach. In many States this number may far exceed the number actually reached. What, then, is there to be done for the others?

It seems to me the best thing to do, and the thing which must be done very soon, is to have this subject of home economics taught in all normal schools which prepare teachers for the country districts; and to have it so taught that those who go from these places to the rural districts will be able to at least lay the foundation for a broad home regeneration, and place before the people a higher standard of living. Much of the work in the school can be so given as to direct the attention to the home and business side of life. The problems in arithmetic can be made to deal with the raising, buying, selling, and using of farm products; the fencing in of land; laying off rows for planting, and many such things. The data for all this can and should be obtained from actual life. Even when studying geography, the teacher can awaken an interest in and show the relation of the home to the world by studying first the geography of the immediate section, its natural advantages, resources, products, and needs; then studying the county, State, country, and world. The means of communication of section with section, the needs of the section and the nearness to large cities or markets can be made the basis for the commercial side of farm life.

These children hear much about the cow and the horse. Because of their great usefulness to man they should be well cared for; so this might form the subject for many reading, language, and composition lessons, and will lead to the study

of their own bodies, the structure, use, and care of which is a most important subject, and one of which few have any knowledge. In the hands of a skillful teacher this can be so given as to leave indelible impressions of the beauty of clean, healthy, well-cared for bodies: moreover, that all wrong doing leaves a mark which mars this beauty.

As these bodies can not make use of the raw material as do the horse and cow, the preparation of the food should then be studied as I have indicated when speaking of the desk outfit, and the work which can be done with it by the itinerant teacher.

Instead of using the stereotyped drawing book, she can secure from nature models which are far more beautiful in form and color. From a few well-selected pictures, bits of silk, wool, and cotton goods, wall paper, and upholstered goods, that idea of the harmony of color, the beauty of simple form and fitness for use can be taught, which can be applied to dress and house furnishing.

The importance of hygienic surroundings can best be taught by example. The schoolhouse should be well placed, well built, and attractively furnished. Extreme watchfulness will be required of the teacher to keep the schoolroom, yard, and outbuildings clean, to keep the water pail covered, the air of the room pure, and the general aspect one of cheerfulness. Children will soon respond to these conditions and will of themselves take part in maintaining this condition. They will soon learn to pick up and destroy refuse and put things in place, and woe to the comrade who undoes this work. If the schoolroom and teacher are clean and attractive, the pupils will want to go to school. By giving an explanation of and reason for the things which are done in the schoolroom, by bringing in interesting subjects and arousing their interest in familiar things, the pupils will gradually be led to discover the beauty of many things which come within their daily life, and to value the freedom of country life. Such work should make clear to them that the new order of things demands a higher grade of intelligence of the workman and that we should pay at least as much attention to building up a sturdy, intelligent race of people as we now pay to the development of live stock, farm produce, and machinery.

OUTFIT FOR THE ITINERANT TEACHER OF COOKING.

When the itinerant teacher is employed for rural school work and the funds available will purchase only one outfit, a central station and storehouse should be selected. At such place a full kitchen outfit and such groceries and provisions as will not perish may be kept. From this supply the teacher may then select such utensils and provisions as will be required for the day's or week's lessons and buy all else which she needs at a point near the school or more convenient for herself. Utensils and provisions for a day's lessons may be packed in a small hand bag which can be easily carried by the teacher, but for a longer term than this they may be packed in a box. A box large enough to hold the entire outfit and provided with strong lock, hinges, and rope handles can be made for \$5. With such an outfit from 30 to 40 lessons can be given.

The outfit from which to draw the hand-bag supply should consist of the following:

2 very strong alcohol stoves.	2 thin, pointed paring knives.
1 long, thin, pointed knife.	2 teaspoons.
2 tablespoons.	2 small pie tins.
2 flat wooden spoons.	1 vegetable dish.
1 palette knife.	1 platter.
2 small case knives.	2 small plates.
2 forks.	3 sauce dishes.
1 small, flat grater.	2 custard cups.

2 tumblers.	1 meat chopper.
1 toasting fork.	1 teapot.
1 coffeepot.	1 knife sharpener.
1 lemon reamer.	1 measuring cup.
1 skimmer.	1 1-pint freezer.
1 fine wire strainer.	1 straight-side lamp chimney.
1 thermometer (400° F.)	2 yards cheesecloth.
1 piece of wire gauze.	8 yards of white crash.
4 assorted beakers.	6 yards cross-barred crash.
2 small scrubbing brushes.	2 yards brown crash.
1 7-inch aluminum frying pan.	2 yards canton flannel.
1 bread board (very small).	Several holders.
2 yards white oilcloth, 1½ yards wide.	Several asbestos sheets.
4 white enameled bowls.	
2 white enameled saucepans.	
1 2-quart granite saucepan, with covers to fit.	Of such size they will fit one within the other forming a nest.

Such an outfit will cost \$10.

For the box outfit, in addition to the foregoing, purchase:

1 one or two burner blue flame oil stove.	1 oven.
1 bread pan.	1 rolling pin.
1 set muffin pans.	1 biscuit cutter.
1 cake pan.	1 biscuit pan.
2 layer-cake pans.	2 white baking dishes.

This will make the cost of the outfit \$19 or \$20, to which add the cost of the box and the total cost of the outfit will be \$25.

EIGHTEEN LESSONS IN COOKING.

1. Making fire; boiling water; use of thermometer.
2. Boiling potatoes. History, growth, botany, composition, cooking, serving.
3. Sweet potatoes. Treated in like manner.
4. Pop corn, a cereal lesson. Reading of Hiawatha (gift of corn), botany, composition.
5. Corn-meal mush. Products of corn.
6. Blanc mange. Experiment to show use of powdered starch, milk, how produced, care in production.
7. Boiled rice. Samples, growth, composition, cooking, serving.
8. Toast. Change of starch, digestion of starch, and food value of it.
9. Cooking eggs, in shell and out of it. Experiment to show temperature at which albumen should be cooked.
10. Omelet. Beauregard eggs.
11. A pudding requiring a custard sauce, to teach composition of milk.
12. Experiment with meat to show loss of color and flavor when soaked in cold water, and retention of flavor when put into boiling water.
13. Broil steak on a pan.
14. Griddle cakes. Experiment to show use of baking powder.
15. Put up grape or other fruit juice. Lesson on microscopic plants.
16. Yeast bread, except baking.
17. Gelatin desserts (3 or 4).
18. Tea, coffee, cocoa.

THE FARMERS' INSTITUTE AS A MEDIUM FOR DEVELOPING THE MUTUAL INTERESTS AND RELATIONS OF FARMERS AND THE UNITED STATES DEPARTMENT OF AGRICULTURE.

Dr. A. C. TRUE, Director of the Office of Experiment Stations, U. S. Department of Agriculture spoke upon this subject as follows:

Mr. PRESIDENT AND GENTLEMEN: In the discussions which have gone on in this association the way has been laid for a briefer presentation of my subject than I had contemplated, for we have already gone over the principles which are involved in cooperative effort between the Department of Agriculture and the farmers' institutes: so that I do not need to dwell on that portion of my subject, but simply to point out some ways in which we think it desirable that the farmers' institute should be a medium for developing the mutual relations and interests of farmers and the United States Department of Agriculture.

You see at once that in this problem as stated there are three factors—the Department of Agriculture, the farmers, and the farmers' institute. The Department of Agriculture, as Secretary Wilson clearly pointed out last evening, has grown to be a very extensive organization. It has now on its rolls something like 3,500 paid employees, and its appropriations for the coming fiscal year; exclusive of the appropriation for the experiment stations, will aggregate about \$5,000,000—\$1,000,000 more than we had two years ago. From that you can judge something of the rapidity of the recent growth of the Department under the liberal and broad-minded administration of Secretary Wilson; and what some of us think is best of all about that increase is that it will go very largely to promote the investigations which the Department is carrying on in its laboratories and in different parts of the country for the benefit of agriculture.

Now, with the growth of the Department and the elaboration of its service, there is some danger lest it should not keep close enough to the people for whom it is actually working. Our scientific men, working in their laboratories and in other ways, are liable either to look at the problems on which they are working in too broad and general a way, and thus lose sight of the particular needs of the farmers in different localities, or they may be so much interested in the scientific side of the problems on which they are working that they will forget in too large measure that these problems are given them in order that they may work out something for the practical benefit of farmers. And so I think, as regards the scientific service of the Department, we ought to have some definite way by which the scientific men may be brought in closer touch with the practical men of the country.

Then, as regards our administrative service, which is all the time growing in importance, there is danger that the Department shall forget that its prime interest in such matters is with reference to the benefit of agriculture. Its weather service, its meat-inspection service and all other kinds of administrative service in which it is engaged may, if we are not careful, tend in an exaggerated way to help the commercial and other interests of the country, without so much reference to the benefits which they confer on agriculture. For this reason, in order that the Department in its administrative service may know what it should do to help agriculture directly, I would urge that the Department needs some direct way in which it can come close to the farmers of the country.

The farmer, on the other hand, needs to come in close touch with the Department for a number of reasons. He needs to know what the Department is actually doing. That is every year becoming a more difficult thing. I think most of those who listened last night to Secretary Wilson's talk on the Department were told a number of things about its work that they were not acquainted with before. That comment was made to me by a number of gentlemen after the Secretary had

finished his speech. If this is true of the men who are engaged in such work as you are engaged in, how much more true must it be of the ordinary farmer in the country, who naturally would only incidentally come in contact with the work of the Department. The farmer needs to have the work of the Department explained to him; that is, not only what the Department is doing, but what the meaning of the Department work is. And just in the same way the farmer needs to have the work of the agricultural college and experiment station explained to him. He needs to find out more definitely in what ways the Department may help him; and he should also have a greater opportunity to bring his influence to bear on the work of the Department by suggesting lines of inquiry, by getting a clearer view of the administrative service of the Department, and by showing the Department how that administrative service may be so directed as to more efficiently benefit agriculture. He needs to be aroused to greater interest in the Department, so that, when questions relating to the Department arise in Congress, the farmers of the country may take some active part in the discussion and may help Congress to reach the right decision.

This was pointed out to me the other day in my office by Director Henry, of Wisconsin. When we were talking about a new building for the Department of Agriculture, he urged very strongly that we ought in some way to arouse the farmers of the country to some idea of the condition of the Department with reference to its buildings at present, and that we ought to inspire them with some pride in getting for the Department, for the benefit of agriculture, a proper housing; that in this and other ways the farmers should understand what the Department is doing in order that they may help to develop the Department.

Now, coming to the farmers' institute as the third factor in this problem, I believe that in this institution we have the best medium for bringing the Department and the farmers into closer touch, and I will give two or three reasons why I think so.

In the first place, the farmers' institute as organized in this country is a public, as distinguished from a private, organization. We have a large number of voluntary private organizations, and they are doing a grand work in various ways to aid agriculture; but they are not, after all, the official representatives of the farmers, and there are some things which they can not do as well as an official organization like the farmers' institute. As we know, the farmers' institutes are in different States organized in one form or another under public authority and are maintained by public funds.

Then, too, the farmers' institute is an educational institution. That is its whole business. It is not connected with any political scheme or any business matter outside of what relates directly to the business of agriculture. It is essentially a great school for the adult farmer, one which, I think, constitutes a good medium for the discussion of correct information regarding the work of the Department of Agriculture and for bringing the practical men who go to this great school into close touch with the Department.

Closely connected with that is the vital relation between the farmers' institutes and the agricultural colleges and experiment stations. As the agricultural colleges and experiment stations are connected on the one hand with the Department of Agriculture, so on the other they are connected with the farmers' institutes, and thus you have in a way a chain which runs from the Department through the colleges and stations out to the men on the farms, and there is a direct connection all along the line.

Besides, the farmers' institute has already grown to be a very large institution, when we consider the number of workers and the number of farmers who are in attendance on the institutes. We have there a very large body of people who already constitute a means for the diffusion of information concerning the

Department of Agriculture, and with the support which the institutes are receiving in this country we may look forward confidently to the time within a few years when they shall actually reach the great mass of our farmers in all our States and Territories. There is no other organization that has this broad outlook, and for this reason I think the farmers' institute is the best medium for bringing the work of the Department to the farmer.

Now, in order that my remarks may reach a practical conclusion, I would suggest the following as an outline of the organization for this work: We should, in the first place, labor to secure a more thorough organization of farmers' institutes in the several States and Territories. There are a number of States where the institutes are already strongly organized and are doing very effective work. But looking at this matter broadly, the number of such States is still comparatively small, and there is a great work yet to be done in more thoroughly organizing the institutes in the several States and Territories.

Then, too, I think we should have a more thorough organization of this association representing the farmers' institute movement, so that it may become more fully and truly what it evidently is becoming, as indicated by this meeting here, a national and international organization, which will bring the farmers' institutes into one grand system. It is in just this way that the Association of American Agricultural Colleges and Experiment Stations has been able to do a large work in systematizing and promoting the work of the agricultural colleges and experiment stations. This association may develop its work and perform like functions, and thus it will constitute a great connecting link between the Department and the farmers through the institutes.

But beyond that, I think we should have in the Department of Agriculture what may be called a clearing-house for the farmers' institute movement. This association does a great work in bringing all the workers together and in sending out inspiration which reaches to the farthest limits of the farmers' institute work. But this association holds only an annual meeting and its influence is limited for that reason in a very considerable degree. But the Department of Agriculture is doing business every day in the year, except Sundays, and if we had in the Department of Agriculture a regular agency to promote the farmers' institute work we might be all the time operating in this line.

The benefit of such a thing, I may perhaps be permitted to say, can be seen by what the Office of Experiment Stations has been able to do in connection with those stations; that is, without having any authority to speak of, simply by coming in touch with the experiment stations and by doing various things which would help them, we have been able to do considerable, as I think everyone will agree, to promote the efficiency of the stations and to make the movement for agricultural research more permanent and more effective.

So I think, on that model, we could build this which I have called a clearing house for the farmers' institute movement, and thus we would have an agency which would not in the least interfere with the autonomy of the farmers' institute organization in the several States, but would be simply a cooperative agency working in any way that it could to promote the general interests of these institutes.

I have several times briefly outlined some things which might be done by the Department, and yet it may be useful if I briefly call your attention to what it seems to me the Department, through its Office of Experiment Stations (for that is the most natural branch of the Department for work in this line) might do to help the farmers' institute movement in this country.

First, we can do a good deal by collating and publishing information regarding the institute movement at home and abroad; for of course we all know that not only in the United States and Canada, but in many other countries, there is a

great movement which corresponds to our farmers' institute movement in the United States. Our people, and especially our institute workers, ought to know about that, and could, I am sure, get benefit from the collating and publishing of such information. The Office of Experiment Stations has done some of this work, but it has not been able to do very much. I would suggest that the work should be done in a regular way and with definite reference to the needs of institute work in this country.

We can aid the institutes by regularly furnishing the institute workers with the Department publications and with information through correspondence. This, as you all know, is already done to a considerable extent; but it may be, I am sure, much more efficiently and thoroughly done by having in the Department a regular agency for this work. If such an agency were established, the institute workers would undoubtedly appeal to the Department with much more freedom, in just the same way that the officers of the agricultural colleges and experiment stations have now got into the habit of appealing to the Department for assistance in all sorts of ways.

Then, too, the institute workers should be made to understand that they are always welcome to come to the Department, and, by residence at Washington for a longer or a shorter time, enjoy opportunities for acquiring information through personal contact with the officers of the Department, the use of its library, etc. As many of you know, there is a growing number of officers of the agricultural colleges and experiment stations who expect to come to Washington quite often and spend some time in seeing what the Department is doing, in going into its laboratories, observing, as far as may be feasible, how its operations are carried on, and in this way getting into close touch with the work. In some such way as that, I think, by proper organization, the conductors and workers in farmers' institutes might be helped in their work.

The Department may also help the institutes by advising and assisting the institute managers with reference to perfecting the organization and advancing the work in particular places. This may be done by conferences between the individual managers and the officers of the Department who are definitely studying the problems of the institute movement, largely through observations made in different States and Territories and in foreign countries.

I think it is agreed that one of the most useful things that the Office of Experiment Stations has done has been to send its representatives from time to time to visit personally the institutions in different States and in other countries, and thus to get an immediate view of the work, so that as we come in contact with the station officers in different places we can bring to them the information and experience which we have gained by this wide outlook of the problems relating to the organization of the work of the experiment stations. In a similar way I think we might do useful service if we had somebody in the Department of Agriculture who could go around and consult with the farmers' institute managers at different places.

There are some States where there is very little, if any, farmers' institute work now done. The people do not understand what the movement really means. The legislatures do not comprehend what is needed to set the movement on its feet. An officer of the Department could easily help to establish institutes on a permanent basis in such regions by going there and consulting with the influential people in the community.

Then I think the Department may help the institutes more largely than in the past by sending out lecturers to address representative institutes in different States on the work of the Department. Thus far the Department has trusted very largely, you know, to its publications for the dissemination of the information which it gathers, and which has grown to be very large in extent and variety.

It would hardly be practicable under any conditions for the Department to be represented in the institutes generally in the United States, there being now, I suppose, some 2,500 institutes held in a single year throughout the country. But I think it would be practicable for the Department to be represented at the round-up institutes and at other institutes where representative workers from all over the individual States are gathered together. In this way the influence of the Department would be extended and its officers would have opportunities which they now lack for finding out what the farmers really desire to have the Department do for their benefit.

And lastly, to repeat by way of summing up what I have already said, I think the Department may act as a clearing house for the farmers' institute movement, so that it would be a center for the focalization and dissemination of information and influences which would serve to develop farmers' institutes and make them a more efficient means for the education of our farmers and the improvement of our agriculture.

With these objects in mind, the Secretary of Agriculture asked Congress at its last session to add to the appropriation for the Office of Experiment Stations \$5,000, which might be used to help the farmers' institutes. Congress cut the amount in two. This was done at the last moment, even after the bill had actually passed both Houses, in order to correct what was euphoniously called a "clerical mistake." So that instead of having \$5,000, which we hoped to have, we have just about half that amount.

This makes it somewhat of a puzzle for us to know just what is best to do. We can, of course, begin to do something this year with that amount of money, but if Congress should not increase the appropriation it would be difficult for us to carry on the work with any efficiency, for we ought to have at least one good man, and it has seemed to me that we ought not to offer any less salary than \$2,000 for such a position. That amount I regard as the minimum. Then he must have some clerical assistance, for I am sure his correspondence would speedily get to be a large one. And he must have money which would enable him to travel about the country. So that with expenses for this and other incidental purposes, you can see that \$2,500 would be inadequate, even on the crudest basis, for this work.

I believe, however, that, all things considered, it will be best for the Department to undertake to do something. That, I am sure, is Secretary Wilson's principle of action, for he has told me over and over again that the way to get work started and get Congress to do things was to begin to do them. So I hope that during the fiscal year on which we are just about to enter we shall definitely take up this work in the Department and begin its organization. And as we start out we feel that we need the counsel and help of the managers and workers in the institutes. I hope, indeed I feel sure, that we can rely on this association to give us the help we need, in order that we may get a good agent to conduct this work and in order that we may lay the lines of work in the wisest and best directions.

This year, without special authority and simply through an interchange of courtesies with this association, the Department undertook to print the proceedings of the association, and they have, I think, been quite thoroughly distributed. We would like to continue that arrangement, and on conference with the officers of the association the Department has undertaken to get a stenographic report of the proceedings, and if desired by the association will publish them, as it did before. If you should decide that this is the best thing for us to do, we should like to get some definite ideas with reference to the number of copies which you would need. Doubtless your officers will take up that question in connection with others relating to the details of this business, and I need not occupy your attention longer with these matters.

W. C. LATTA, of Indiana. I am in hearty accord with the views expressed by Dr. True. Nothing but good to agriculture can come from a closer union and a clearer understanding between the farmers and the national Department of Agriculture. The latter can not do its best work for the farmers without their intelligent cooperation and loyal support. The best interests of the farmers can not be fully subserved without the effective assistance of the Department of Agriculture. From whatever standpoint we view the question the conclusion is clear that the farmers and the national Department of Agriculture should be in the closest touch, and that each should be thoroughly acquainted with the needs of the other and the possibilities of being mutually helpful.

The farmers' institute is the one great agency at the present time for bringing the national Department of Agriculture and the farmers of the United States together on a basis of effective cooperation. Although the truth of this statement is apparent at once, it is a question whether institute workers have always in the past worked as intelligently and as effectively to this end as the interests involved would warrant. Shall we not in future, as institute superintendents, conductors, and speakers, strive to bring more closely together, not only the farmers and the Department of Agriculture, but also the farmers and the experiment stations, the farmers and the agricultural colleges, the farmers and the agricultural fair associations, the farmers and the agricultural press. Their interests are mutual, their cause is common, but the work to be done is great and very arduous. There is much inertia to overcome, and in some quarters ignorance, indifference, and misunderstandings to be removed.

The farmers' institute can and should be a great enlightening and cementing agency to bring together in harmonious working relations the several great institutions for the betterment of agriculture. With an intelligent setting forth at the farmers' institutes of the mutual interests of farmers and the Department of Agriculture and a clear pointing out of the many ways in which the Department of Agriculture is serving the farmers, the ends sought in Dr. True's address may be attained.

I certainly approve of the efforts of our Secretary of Agriculture and his colleagues to establish in the Department of Agriculture an agency to promote the farmers' institutes similar to the Office of Experiment Stations. I believe that an effective officer, working under the direction of the Secretary of Agriculture, could glean and disseminate much information that would be of great advantage to institute workers throughout the country. Such an officer in correspondence with the State superintendents or directors of farmers' institutes could doubtless arrange for the employment in many sections of the country of speakers whose wide range of observation and travel would fit them peculiarly for the discussion of certain questions at farmers' institutes.

Speakers of this stamp would, as a rule, not be available to the State institute directors acting independently. One of the urgent needs of the farmers is a broader view. The fact that thousands upon thousands of farmers are blissfully unaware of this need makes it all the more urgent that they have opportunity from time to time to extend their social, business, and political horizon.

I trust that the efforts of the Department of Agriculture in this direction may prove entirely successful.

THE RELATION OF RAILROADS TO AGRICULTURE.

The following paper on this subject by M. V. RICHARDS, Industrial Agent Southern Railway, was read:

The farmers of the country generally have awakened to a true sense of the importance of schools and colleges for the education of their children. But they must also awake to the necessity of schools for themselves, not schools of litera-

ture, of Greek and Latin, for these subjects belong to the boys and the girls who nowadays are perfectly willing and able to show off by exhibiting themselves creditably on commencement day. But there is another kind of school, no less worthy of support, which I will call the "farmers' college." This school is the farmers' institute, and, in my judgment, it is the very best practical educator the farmer can have. It assembles together in the closest touch and intimacy men of different ideas, each man a specialist, perhaps, who has given laborious time, thought, and money in experiment, in demonstration, in perfecting. The exchange of these ideas, these separate experiences, results in this, that each member goes home with a treasury of hard-earned practical knowledge. His own ideas have been broadened where they have been right ones, and where his own ideas have been wrong he is enlightened by hearing that the experiment upon which he had intended to expend time and labor and money had already been tried and found wanting in fruitful results. In the institute every man is a scholar and at the same time a teacher. The fire of questions, the statements of fact, the narrative of personal experiences, the explanations of cause and effect, all tend to rouse his thinking faculties, strengthen his judgment, and encourage him to better effort. He abandons antiquated ways and adopts modern methods or induces his neighbor to do so. Markets are discussed, new uses are found for by-products, the propagation of plants, the treatment of fruit, the cure of plant diseases, the eradication or prevention of insects, and a thousand other subjects and topics for the farmer's practical enlightenment in this temple of learning send him forth better equipped than ever for the work of development and the improvement of his condition.

The railroads are the natural and the necessary friends of husbandry. They are in direct and constant sympathy with whatever tends to elevate it, to make it more progressive, to render its pursuit more profitable. The railroads believe implicitly in the great good that can be achieved through farmers' institutes, and their interest in them is therefore as practical as it is sincere. This could not be otherwise, since the success of the railways depends so largely upon the success of the farmer. Now, the success of both depends upon intelligent, practical effort, and this is possible only through frequent communion among those who have a common interest or follow the same pursuits. The farmers' institute is the farmer's granary of knowledge, whence each single member carries forth with him, back to his farm and his family, the farm wisdom of a hundred others who, like himself, are honorably seeking their own betterment. The production of the farm increases, the value of farm lands is enhanced, and eventually the railroads are benefited by the increased tonnage to be carried. Thus the prosperity of the railroads is inseparable from the prosperity of the farmer, and their relations are as a bond of union, compelling them, in their own interests, to aid each other and to do no wrong toward each other.

I have the honor of representing one of the systems of railroads radiating through a vast territory, one whose lines extend in many and various directions for many thousands of miles, through ten States rich in agricultural possibilities and resources, capable of sustaining in thrift and plenty many times the present farming population. But as the country advances in wealth, population, intelligence, and needs, the demands upon the farmers become rapidly greater and more exacting. The farmer must no more be "behind the times" than the scientist, the manufacturer, the merchant; he must be wide-awake, expansive, and super-intelligent in his own line of business. He can not become so by communing with himself nor by thinking out alone some problem or theory for himself. No man has ideas numerous enough or big enough to enable him to stand alone or work alone. Ideas are things to be shared and to be compared, and there is no other plan, method, or opportunity so certainly beneficial or sufficient to enable the

farmer to reach these heights of intelligence and this degree of effectiveness as through the institute. Its influence, acting through him, determines the growth of his section and makes the farmer himself a more influential man and factor in the community.

Such, then, is the importance and consequence of the farmers' institute that I believe it will eventually become an institution of national importance; that ere long institutes will be held regularly in every county served by the Southern Railway. We will even hope that in time all sections of the Union may have their institutes and enjoy the fruits of such meetings. For, I repeat it, the advantages gained by such intercourse of farmers and such interchange of experiences, knowledge, and ideas can not be overestimated. And I earnestly want every farmer who dwells within the sound of a Southern Railway whistle to charge himself with the duty of attending these meetings, the duty of helping to organize these institutes, the duty of supporting them in their noble and beneficent purpose. Not only will they make better farmers of you, but they will give you the means of teaching your children to farm according to advanced methods, and you could not give them a better heritage than this knowledge along with the old farm.

AGRICULTURE IN RURAL SCHOOLS.

A paper on this subject by E. P. POWELL, of Yew York, was read as follows:

(1) The rural school should be a town school. The old district school was never intended for anything but a makeshift while New England was pioneering westward. The lack of transportation in those days made it necessary to cut up large towns into small districts; this is no longer necessary. The town unit is the Anglo-Saxon unit, and it is the best thing ever devised for affairs of church or state or school. In this town, or township, the school should be the center of influence, with the church as coadjutor. In fact, in most of our towns, schoolhouse and church should be one. The superintendent should be the most influential authority in the community. President Harper of Chicago University complains that, as things are, superintendents have little or no authority, and are chiefly statisticians. The town center used to be the church; it is now the saloon or the pool room. The reconstructed town must be the intellectual and moral forces combined, and all concentered at the schoolhouse. District schools are vanishing because they have fulfilled their purpose. At present only about one hundred private academies are left in New York State, and not a half dozen of them have any influence on educational ideas or work. Organize your town schools and you can then have as good teachers as they have in the cities; probably better.

(2) The second fact that our times abut against is that we must have a new sort of school building for the country. We are building too expensively; but worse yet, we are putting up imitations of city buildings. There should never be a two-story schoolhouse, unless land is \$50 a front foot. We have land enough, everywhere among our farms, for every room to be on the ground floor, with light let in joyously and abundantly from above. You make a vital mistake when you try to make your schoolhouse an example of fine art, surrounded by a finished-up landscape. The country should never imitate the city at all. The city is a limited field, under art compulsions. There is no freedom nor breadth in city life. It has to be beautiful and useful within certain rules. The country, on the contrary, is God's home of freedom. The rural school should be, as nearly as possible, a simple, wholesome, neat supplement of our homes. Let the grounds be for the education of the children, and last of all things should be the sign "Keep off the grass." Your dandy schoolhouses straight lace the pupils and make them contemptuous of homes that are less artful.

(3) It follows that agriculture should be directly taught to the children of agriculturists. Agriculture is once more assuming its place of honor among the industries. The telephone will soon have connected our remotest farms with the centers of civilization. The trolley will carry our market produce as well as ourselves; it will displace our dirt roads and our heavy wagons; it will cobweb the whole country. The trolley plant will give us power to light and to heat our houses and barns and to run our machinery. Meanwhile the cities are spreading out, with rapid transportation, and are carrying wealth and taste for a more equal distribution. To enable us to hold our place, the place that the age insists on giving us, we must as farmers be thoroughly educated, and educated as farmers. We must make it possible to furnish from the ranks of farmers such statesmen as Farmer Jefferson, the finest scholar of his age.

But when we say teach agriculture, we say a very inclusive thing. It may even sometimes include Latin or German or any other study that aids the boy or girl in getting at the facts and truths of nature—anything whatever that gives him ability to carry on personal investigation. No industry on earth needs and must have a broader and better training. The farmer does not get behind a counter, to measure dry goods or price hardware all day, every day; he goes into the fields to create new things, to fight with countless subtle foes for the possession of the earth. His productions outreach the United States, to capture the markets of the world. He must know not only how to produce the largest amount from a given space, but how to furnish the most perfect possible products. He must know bugs and beetles or he will be whipped by them. He must know cattle or he will be a servant of his own beasts. That "clod-jumper" is not a farmer at all, who has studied in your schools for a dozen years, yet knows nothing of the vast population that occupies the land with him, who does not know one bird from another, and to whom, as one of your commissioners of agriculture said, "A cow is only a board-faced animal." Our law makers must come from the farm; but before that our farm boys must be educated to comprehend that there is no industry on earth comparable with that of land tillage. Those who do not understand the economics of production are unfit to legislate concerning the distribution of products.

Farming should be the aim and end of education in rural schools. That does not mean, however, that these schools should teach solely the art of cultivating plants. Rural schools should be broadened and not narrowed. You can not broaden them by teaching how to grow beets and spray apple trees, unless with this you give our boys and girls a knowledge of language and of history. Language is a mind tool; a hoe is a hand tool. They must go together. God knew how to make a man when he put one head on top but one hand on each side. They go together; they must cooperate; they should be educated together. Agriculture is the one industry that has close relations with all the sciences. You can not be a good farmer unless you are in some measure a botanist, a geologist, an entomologist; you will be a better farmer for being well up in ornithology and in landscape gardening. And I will say farther, that you should never own an acre until you have a clear apprehension of the great purpose of agriculture, which is not simply to fill your pockets and your stomach, but to benefit the world. When a man knows the God of the orchard, and how nature has made out of the potentilla—a little weed—the apple, the pear, and the plum, and the apricot, and the peach, and the strawberry, and the raspberry, and the blackberry, he will begin to be fit to work at the same great problem of evolution. When he knows the God who planted the "garden eastward in Eden" he will be fit himself to be a gardener, and he will know enough, if it be possible, to give his own garden a slope to the eastward. I do not mean that it is necessary for a farmer to believe in a religious creed, but it is essential for him to believe and know that he, above all

men, is working with the Creator for the progressive development of nature. He should know that he is under obligation to create the beautiful and the good, as well as the useful. If the nineteenth century produced astonishing results in the way of new fruits and flowers, the twentieth must do better. So you see that when I say farming is to be the aim and end of rural school education I mean something noble and grand, something worthy of the ambition of an educated American, something infinitely better than can be offered by the city.

(4) Therefore every country schoolhouse should be planted in the middle of not less than 1 to 5 acres of land. Associated with it, and a part of the school, should be a thoroughly furnished workshop, and an operative kitchen. One half of each day should be spent indoors, studying the investigations of others; and the other half should be spent out of doors or in the shop or kitchen, learning how to investigate personally and originally. Books half a day, and tools half a day. Brain work one-half the day, and handwork one-half the day. In this way study will be steadily applied, as fast as it is acquired—mathematics to surveying, botany and entomology to horticulture, grammar to pleasant expression and exact communication. There is no one thing that we need more to apprehend than that the end of education is not the acquisition of facts. A man so educated is rendered utterly helpless, unless he can find another brain into which he can pour what he has accumulated. The school lot should be rich soil, well drained, and healthy. The shop should be furnished not only with agricultural tools, but with jack planes, saws, and chisels; with turning lathes, and a good gasoline engine—unless power can be had from an electric light plant or a trolley plant. A town is not decently organized that owns a schoolhouse but has no power that it can furnish to heat and light and serve its own buildings. The garden school is to be the school of the future. As an ideal it is already finding shape in England and in Germany—"a school in the country, where hardihood of life can be cultivated, and where life is simple and varied; a school where masters lead a common life with the boys, working at gardening or plowing as well as with books. In such a school, work consists of interchange of occupation—continuous but varied; some lighter, some severer; some taxing muscle, and some brain. In such a school there is established a collective, corporate life, in which each member learns self-reliance, individual responsibility, and constant adjustment of the relation of self to other people. The virtue that here grows up will not be negative—constrained by external force—but active virtue that springs from having lived in a well-organized community." I am quoting from a description of a school at Ilsenburg, in Germany. I hold that every country school may be essentially of this sort. The sexes of course should be together. The kitchen should be as much used as the shop. A boy with a knack for it should study cooking quite as surely as a girl may learn to handle horses and care for sheep and cows. God has supplied for both sexes the same facts. There is not one rule of three for the girl and another for the boy. The ten commandments and the golden rule are for both and alike.

(5) The farmer's school has also some things to get rid of. In the first place it must get rid of strait-jackets and prison discipline. A schoolhouse should be a beehive, full of free and happy intercommunication. That is no study at all which shuts a child up with a book of a dull sort out of which he is compelled to dig a dose of facts. The meanest jailer I ever saw sat behind a desk in the little red schoolhouse, with a hickory ruler in his hand, after writing on the blackboard, "Whoever whispers shall be punished." Such buildings should be understood to be just what they are—places for the suppression of childhood, the abolition of human nature, places to breed cheats and liars and lawbreakers. The children should be not only permitted to communicate, but encouraged to do so. Froebel asks why we can not give the child that which is called education

through his voluntary activities and have him always as eager as he is at play. One more thing should be abolished, not only from our farm schools, but from every school. I mean every method and accompaniment that produces nerve exhaustion. Above all, competitive examinations should be forbidden in any common school of the Republic. Our nerve breakdown is not due, all of it, to bad habits, nor to stimulants and narcotics; nor is it due to the pressure and anxiety of business affairs. It is, in a much greater degree, due to school training. We have fallen into the habit of graduating wrecks. Some one has said that the first thing to do with a child, especially with a girl, is to make of her a splendid animal. He is right, for you can do nothing in the way of wholesome, intellectual training where bodily vigor is lacking. What will you do without examinations? I reply, take the word of the teacher. A teacher that is good for anything knows better than a dozen examining boards whether a girl or boy is fit to be advanced. It is an outrage to put the weak and the diseased into a furious competition with the stronger to see which is best stuffed with facts. This makes it a question of the stomach and not of the brain; a question of digestion and not of real scholarship. Finally, we should forbid the seating of children, even on the best patented seats in the world, over one hour at a time. To most of them it is torture; to those who are patient it is a symptom of disease. Pupils should be permitted and directed to walk about as they study. Recess, of the old-fashioned sort, should occur at least twice in the half day. Fifteen minutes of play should follow one hour of study. The school lunch should occupy at least one hour, and it should be supervised by a teacher of hygiene. It should come from the school kitchen. Then should follow two to three hours of garden and shop work. With this plan the infernal treadmill will be gone, and the children will rejoice in school life and school work as they rejoice in play. Withal you will be creating healthy, honest children, with clear brains, while more will be accomplished in the way of mental acquisition in a single year than in two years of the prevalent system. "Stuffed anthropoids, most of them with spinal or brain disease," and few of them thoroughly sound throughout, will not make first-class citizens nor beautiful children of God. What should a school system be for if not to make perfectly healthy and sound men and women, capable of performing all the functions of social life? Professor Search puts it grandly when he says: "The child needs life in the sunshine. He needs refreshing sleep and well-selected, wholesome food. He needs normal hours for work. He needs an abundance of opportunity for pent-up energy to express itself in play. Good health must be recognized as the basis, not only of intellectual endeavor, but also of moral achievement. The normal body must be the dwelling place of the normal soul."

President Hall, of Clark University, leads this point still farther when he says, "He who is true to his body, which is a temple of the Highest, can not be unfaithful to his soul." The recognition of the fact that, during school years, the boy and the girl are being carried by nature through great changes of personality, of function, and of sentiment, has been overlooked too long. Especially in our country schools should this neglect be remedied. Earl Barns says: "There are two sources from which that knowledge which concerns our physical changes can be obtained: One is true and pure; the other false and dirty. Nineteen-twentieths of children draw their information about these natural evolutions from those who possess the morbid, the false, and the dirty views. The view which these children obtain is an abnormal one; and when they develop, they use their sex powers abnormally. We need to have the laws of health, of life, and of procreation taught in our schools, and not in the streets"—by educated teachers and not by ignorant servants. A careful record of 125 girl graduates showed that 36 passed into womanhood with no knowledge whatever, from a proper source, of all that

makes them women; while less than half of the whole number had felt free to talk to their own mothers on this vital subject. No school book recognizes these functions or undertakes to make education direct them. In our rural schools it is supremely important that we see to it that vicious teaching is supplanted. The true, the beautiful, and the good constitute, together, the end of education; not simply to impart facts, but to open the eyes to see, the mind to comprehend, and the soul to rejoice in the beautiful and the good. That a farmer's boy or girl should lack in such an apprehension is more shameful than that they should lack a knowledge of arithmetic and grammar. They are surrounded by the beautiful, and should be taught to appreciate it. There is nothing more beautiful in the world than a peach tree in fruit; unless it be an apple tree in bloom; unless it be a neat vegetable garden; except hollyhocks along the fences; except a beech tree with a boy shaking it; unless, indeed, it be an elm with three oriole nests hanging in its limbs; or a clover field in full bloom; or beds of old-fashioned pinks; unless it be the boys and girls themselves, in the flush of rich life, under the impulse of pure thought and generous aspiration.

In this way the farmers' school educates to and not from the farm. It ennobles handwork and glorifies toil; it leads to investigation, as well as acquisition of knowledge; it applies all that it teaches; it widens the outlook; it warms sentiment as well as sharpens the intellect. Besides this, such a farmers' school shows his relation to the community, and that of the community to the Republic. It is a school that glorifies the arts of peace, and the heroism of everyday duty. It makes the kitchen a vestibule of Paradise, and the garden a second edition of that garden which the Lord planted eastward in Eden. What have farmers' associations to do about it? In the first place they must see plainly what is wanted; in the second place they must insist on having it.

THE JUDGING OF LIVE STOCK AS FARMERS' INSTITUTE WORK.

The discussion of this subject was opened by G. C. Creelman as follows:

MR. CREELMAN. In the year 1830 the legislature of the province of Ontario passed what is known as the Ontario agricultural and arts act. Under this act provision was made for the formation of agricultural societies. The act has been amended from time to time, but according to its provisions the objects of the district and township societies are "to encourage improvement in agriculture, horticulture, manufactures, and useful arts—

"(a) By importing and otherwise procuring seeds, plants, and animals of new and valuable kinds;

"(b) By offering prizes for essays on questions of scientific inquiry relating to agriculture, horticulture, manufactures, and the useful arts;

"(c) By awarding premiums for excellence in the raising or introduction of stock, for the invention or improvement of agricultural or horticultural implements and machinery, for the production of grain and of all kinds of vegetables, plants, flowers, and fruits, and, generally, for excellence in any agricultural or horticultural production or operation, article of manufacture or work of art;

"(d) By carrying on experiments in the growing of crops, the feeding of stock, or any other branch of agriculture, or by testing any system of farming through arrangement with one or more of the farmers of the municipality in which the society is organized."

Even the ordinary observer will note that these are all worthy objects, but unfortunately our farmers have not carried out the letter of the law, and the real function of these societies has become the holding of an agricultural fair once a year. In earlier years this fair had a very important place in the life of every

Ontario farmer. It was at this time that they vied with each other as to who could produce the largest and best specimens of farm crops. It was a time of reunion for men and women; it was a holiday gathering for people for miles around, and nothing was allowed to interfere with the attendance of the entire family at the local agricultural fair. Unfortunately our fairs have deteriorated in the past twenty years, and it has been thought necessary by most of our fair managers to introduce "special" attractions in order to get the people to attend the fair at all. These special attractions have been far removed from anything in connection with agriculture, and the result is that to-day on many of our fair grounds during the progress of the fair one would scarcely recognize any agricultural features. Fortunately this is not true of all. Some of our fair boards have taken the stand that educational features might be substituted for special attractions, and in introducing such features they have met with marked success.

With us in Ontario the breeding of pure-bred live stock is one of the principal industries; in fact, no country of its size in the world exports so many pure-bred animals as the Province of Ontario. It would naturally follow, therefore, that live stock should be one of the principal features at our exhibitions.

There have been complaints from among many of our best stockmen that satisfactory judges were not always provided at the shows. This led the department of agriculture for Ontario to investigate the condition of things and suggest a remedy.

This year 50 of our fairs are to be arranged in circuits, and expert judges for horses, cattle, sheep, swine, and poultry are to be sent from the department of agriculture at Toronto to each of these fairs. These judges are prepared in every instance to give their reasons for awards given, and it is being advertised as a special feature of these exhibitions. We had one circuit last year, which worked admirably, and I quote from letters received from two of the judges who were appointed on this circuit. One writes:

"I should like to state a few of our experiences in judging in the Ottawa Valley. We went into the eastern district knowing no one. We were instructed to hew closely to the line and not to show favors to anyone, but simply to lift up the standard we had been taught to work to. We endeavored to do that. As a result, we have since found that our work was appreciated. All the animals brought forward were subject to criticism, so that you will see that the educational value of the work was great. I can assure you that giving reasons for awards is not an easy task. You are many times placed in a delicate position. It is a difficult task to adversely criticize an animal with the owner standing close to you. But we found that all the exhibitors received our criticisms very gratefully. They told us they were satisfied and declared their intention of trying to improve the standard of their stock. One exhibitor of pigs, for example, said he saw just where improvement was necessary. Another year you will find these same men exhibiting animals that come nearer to the standard."

Another judge writes as follows:

"I visited and judged at the fairs of the Ottawa Valley last fall. I was told that we would be required to give addresses at the ring side and state our reasons for the awards. We found that a good deal was expected of us. We were largely advertised in the local papers and by posters. At the Russell County fair I had to judge 209 horses in half a day. When I saw how those horses had been fitted up, I concluded that there were scores of men among the exhibitors who knew as much about horses as I did. Judging horses at that fair was a greater strain than judging horses at the Toronto Industrial. In one class there were four stallions, one of them imported. The imported animal was put second, and of course there was an immediate demand for the reason. This necessitated not only bringing out the strong points of the winning horse, but the weak points

of the unsuccessful one. A task of that kind is a difficult one, but I think it is the only just and intelligent way to work. It will do away with the system of giving the prize to the owner and not to the animal: it will do away with the cry that there is partiality shown. I see they are trying to adopt this system in England and Scotland. No judge ought to go into the ring unless he is prepared to give his reasons, and if he gets tripped up a time or two it will make him pretty careful."

In conclusion I would like to give you an illustration of how judging at our fairs, followed up by institute work, has helped one particular industry in Ontario.

We do not grow corn to any extent in Ontario, and there is a duty on such feed stuffs coming in from the United States. We can not therefore fatten our pigs as cheaply as the people on this side of the line. Our country, however, seems especially adapted to the growing of hogs, and a rapid demand springing up for breakfast bacon, our department of agriculture decided to give all the assistance possible to farmers engaged in this industry. The pork packers were consulted as to the kind of animals best suited for the export trade, and photographs were then secured of the desirable and undesirable types. These photographs were enlarged and for two years were exhibited at every farmers' institute meeting in the province, and a short talk given as to the kind of animal needed for this trade, also how to feed and breed the same. Following this up judges were appointed at our leading fairs and given instructions to judge all hogs from a bacon stand point. The result is that we have now practically but three breeds of hogs in Ontario—the Improved Yorkshire, Improved Berkshire, and the Tamworth, or crosses of these three. Our farmers are getting 7 cents per pound, live weight, for this class of hog, and they are turning it off at from seven to nine months, weighing from 170 to 220 pounds.

At first a number of our exhibitors who were breeding the short, thick hog objected very much to the decision of the judges, saying that they were entirely ignoring breed points, and that they were throwing out entirely animals that had previously been prize winners. The judges, however, were firm in their decisions, and the fair boards threw out the protests. The result was, as might be expected, that the breeders changed their tactics entirely, until, as stated above, our hog business is reduced to the breeding of three breeds only.

We believe that similar results can be brought about with all kinds of stock where competent judges are appointed and the programme arranged so that the judges will have time to give their reasons for their awards. It will break down petty jealousies among neighbors: it will show breeders what the market demands, and will encourage owners to get rid of nonprize winners and to buy only from those who, according to the opinion of expert judges, have first-class stock.

We believe this to be good institute work, as it supplements the work of the winter meetings, which, being held indoors in school houses and town halls, must necessarily be to a large extent theoretical in their nature.

Mr. MARTIN. Would a word from me be admissible relative to the excellent paper to which we have just listened? It has formed part of my work in Pennsylvania to collect reports and statistics from our agricultural societies and county fairs; and I was especially interested in the paper just read, relating as it does so very intimately and closely to the advancement of our work, emphasizing the importance of premiums and encouragement to agricultural products.

In Pennsylvania, for the last two years, we have arranged to have expert judges for all classes of home products. This has worked, in many cases, a wonderful change—a wonderful revolution.

We have not yet adopted the plan of requiring these expert judges to give an address designating the reasons for their awards of premiums. That, in my judgment, is a most excellent recommendation, and one which ought to be carried out pretty faithfully.

The agricultural fairs in Pennsylvania are joining almost universally with the farmers' institutes in setting forth the interests of agriculture and in stimulating competition along the different lines of home products. This influence has proved a mighty power in the advancement of agriculture in Pennsylvania.

Mr. MCKERROW. Mr. President, the subject of the paper just read interests me personally more than any other subject on the programme, although it may be looked upon by some as rather outside of farmers' institute work. Let me state the reasons for my special interest in this question: For some thirty years I have been connected with the agricultural fairs in our State. I have been an exhibitor at the leading shows in the Northwest, and I have done a good deal of judging at the fairs on our side of the line and a little upon the Canadian side. For fifteen or twenty years I have taken the ground that at the time of making awards we should give our reasons for making them. On the occasions when these awards are made the people stand around the ring side. They want to get an understanding of the merits of the different breeds of the animals exhibited. At our leading fairs the animals exhibited are often so nearly alike that the ordinary farmer can see no difference; or, if he does, it often happens that the second prize or third prize animal, or the one that receives no award, seems to him better than the one that takes the highest prize. So he goes away from the ring side believing that the judge has been dishonest in giving his award—has been influenced perhaps by personal friendship for the exhibitor; or that the judge is ignorant of the matters on which he pretends to be an expert; that the fair managers have made a bad mistake in selecting such a judge. Whichever may be the idea with which the farmer goes away, it disgusts him with fairs, and the next year he does not return.

Then, again, many exhibitors are so wrapped up in the qualities of their own animals that they fail to see the good qualities of competing animals; but if the comparative merits and demerits of the competing animals can be pointed out by a competent judge—and he must be competent before he undertakes such a business—the man who fails to receive a prize will see what has been his mistake, and the next time he comes to the fair he will present an animal that is strong where the other was weak; and the people who stand around the ring or who are seated in the pavilion when the awards are given will thus receive an education in this matter. Our best farmers will congregate there to receive such education. In my own experience I have seen the beneficial results of explanations made by the judges as to the reason of their awards. A judge who has the proper tact can make his explanations in such a way as to avoid giving offense to exhibitors. He must be plain and at the same time practical in the use of his language.

Being myself a superintendent of the farmers' institute, a member of the State board of agriculture, and also an exhibitor, I feel a greater interest in this subject probably than many others here do; but I hope you will all go home and push this matter in your respective States.

Mr. NALL. I would like to inquire from the gentleman on the floor how he gets over this difficulty: If the judge is not himself a stock raiser, his explanations will not be regarded as of much value; on the other hand, if he has stock of his own, he may be considered as leaning toward his particular breed.

Mr. MCKERROW. At our State fairs in Wisconsin we have these different breeds in different classes. We do not bring those of two different classes together. At county fairs where they do bring them together, it will require, of course, a great deal of discretion in the selection of judges. Though a breeder myself, I have given awards in favor of breeds that I had no money invested in. I think that any man fit to be a judge, although he may be breeding an opposite breed, ought to be broad enough and well informed enough to see the merits of other breeds. If he is not, he has missed his calling as a judge.

Mr. LATTA. I would like to ask, to what extent has this kind of work been taken up as an arm of the institute work in different places? Is it done under the auspices of the local or provincial or State or district fair? Or is it done as a separate thing at some convenient time by the institute? Has it been done under the direct auspices of the institute, or simply in pursuance of institute methods?

Mr. MCKERROW. At the Waukesha fair in our State it has been done directly under the auspices of the institute. The county fair paid the expense, but it was advanced as an institute move. That is the only way in which I would go into the work there.

Mr. LATTA. Would you recommend that this be incorporated as a feature of the fair, or would you recommend separation in such cases?

Mr. MCKERROW. That would depend a good deal on what kind of an arrangement you could make with the fair board. For the sake of the institute and the advertising which it would give to the institute and the booming it would give to their work, I would say have it as an institute feature.

Mr. LATTA. You mean in connection with the fair?

Mr. MCKERROW. Yes, sir; certainly—as a part of the fair. We want to lift up the fairs in an educational sense. If the institute workers can help to lift the fairs up and make them the means of giving valuable lessons to the people, that is a very desirable result to achieve.

Mr. LATTA. I have been under the impression for years that the explanation of the award, the giving of reasons therefor, is the very capstone of the art of education in the show ring.

Mr. SPILLMAN. In the State of Washington, where our farmers' institutes nearly always hold two-day sessions, we arrange, if, for instance, the locality is specially interested in dairy cows, that the farmers shall bring some of their dairy cattle to the institute, and on the second afternoon, about 3 o'clock, we adjourn to the grounds or any other convenient place where the cows can be placed in a ring and a lecture is given on the excellences or defects of the cows thus brought for exhibition. In my judgment, we get a great deal of good out of that kind of exercise.

Sometimes a similar proceeding is adopted with reference to chickens, sometimes with regard to hogs, but more usually with dairy cattle.

Mr. MCKERROW. We have done a good deal of that kind of work in Wisconsin. I think nearly one-half of our institutes now offer prizes for farm products or for fine breeds of dairy cows, horses, oxen, and sheep. The institute workers are asked to do the judging. If the day is pleasant, this is done in the open air before the crowd. The reasons for the award are always given, and probably the discussion may be continued in the hall.



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